CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION

TCEQ PART I APPLICATION FORM, CORE DATA FORM, AND MAILING LABELS

Prepared for

City of Del Rio

October 2020
Revision 1 January 2021
Revision 2 May 2021
Revision 3 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION

TCEQ PART I APPLICATION FORM, CORE DATA FORM, AND MAILING LABELS

CONTENTS

09/07/2021

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VAL VERDE COUNTY, TEXAS
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DEL RIO LANDFILL MAJOR PERMIT AMENDMENT APPLICATION
TCEQ PERMIT NO. MSW-207B

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STATE OF TEXAS
TEWOBISTA METAFERIA
123183
LICENSED
PROFESSIONAL ENGINEER

Tewobista Metaferia

09/07/2021

DEL RIO LANDFILL MAJOR PERMIT AMENDMENT APPLICATION
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DEL RIO LANDFILL MAJOR PERMIT AMENDMENT APPLICATION
TCEQ PERMIT NO. MSW-207B

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09/07/2021

PART I FORM

11. Permits and Construction Approvals

Permit or Approval	Received	Pending	Not Applicable
Hazardous Waste Management Program under the Texas Solid Waste Disposal Act	☐	☐	☒
Underground Injection Control Program under the Texas Injection Well Act	☐	☐	☒
National Pollutant Discharge Elimination System Program under the Clean Water Act and Waste Discharge Program under Texas Water Code, Chapter 26	☒	☐	☐
Prevention of Significant Deterioration Program under the Federal Clean Air Act (FCAA). Nonattainment Program under the FCAA	☐	☐	☒
National Emission Standards for Hazardous Air Pollutants Preconstruction Approval under the FCAA	☐	☐	☒
Ocean Dumping Permits under the Marine Protection Research and Sanctuaries Act	☐	☐	☒
Dredge or Fill Permits under the CWA	☐	☐	☒
Licenses under the Texas Radiation Control Act	☐	☐	☒
Other (describe) TCEQ Air Quality Premit/Registration	☒	☐	☐
Other (describe)	☐	☐	☐
Other (describe)	☐	☐	☐
Other (describe)	☐	☐	☐

12. General Facility Information

Facility Name: City of Del Rio Landfill

Contact Name: **Alberto Quintanilla** Title: **Public Works Director**

MSW Authorization No. (if available): **207B**

Regulated Entity Reference No. (if issued)*: RN**102143294**

Physical or Street Address (if available): **1897 Railway Ave**

City: **Del Rio** County: **Val Verde** State: **Texas** Zip Code: **78840**

(Area Code) Telephone Number: **(830) 774-8525**

Latitude (Degrees, Minutes Seconds): **29° 21' 20.4241''**

Longitude (Degrees, Minutes Seconds): **-100° 51' 13.9300''**

Benchmark Elevation (above mean sea level): **1051.10** ft.

Provide a description of the location of the facility with respect to known or easily identifiable landmarks: **The landfill is located south of US-90, approximately 2.5 miles west of the intersection of US-90 and Loop 79, and approximately 2.25 miles east of the intersection of US-90 and US-277. The site entrance is located on Railway Ave after the intersection of S Longoria St and E Virginia St.**

Detail access routes from the nearest United States or state highway to the facility: **The site is accessed via US-90. US-90 intersects E Bowie St, northwest of the landfill. From this intersection, vehicles will travel southwest on E Bowie St to S Longoria St and travel east on S Longoria St. In approximately 500 feet the road S Longoria St becomes the site entrance road Railway Ave to the facility.**

*If this number has not been issued for the facility, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Facility as the Regulated Entity.

13. Facility Type(s)

☒ Type I ☐ Type IV ☐ Type V

☐ Type I AE ☐ Type IV AE ☐ Type VI

14. Activities Conducted at the Facility

☐ Storage ☐ Processing ☒ Disposal

15. Facility Waste Management Unit(s)

☒ Landfill Unit(s)
☐ Class 1 Landfill Unit(s)
☐ Process Tank(s)
☒ Storage Tank(s)
☐ Tipping Floor
☐ Storage Area
☐ Container(s)
☒ Roll-off Boxes
☐ Surface Impoundment
☐ Incinerator(s)
☐ Autoclave(s)
☐ Refrigeration Unit(s)
☐ Mobile Processing Unit(s)
☐ Type VI Demonstration Unit
☐ Compost Pile(s) and/or Vessel(s)
☐ Other (specify):
☐ Other (specify):
☐ Other (specify)

16. Description of Proposed Facility or Changes to Existing Facility

Provide a brief description of the proposed activities if application is for a new facility, or the proposed changes to an existing facility or permit conditions if the application is for an amendment.

The purpose of this Major Amendement is to obtain authorization for an expansion of the existing Del Rio Municipal Landfill, TCEQ Permit No. MSW-207A. The existing 79-acre waste footprint will be expanded vertically with 2,187,971 cy airspace gained by the expansion. The elevation of the top deck of the landfill will be increased from 1110-ft to 1113-ft. This landfill expansion will extend the disposal needs the City of Del Rio and the surrounding areas in Val Verde County.

17. Facility Contact Information

Site Operator (Permittee/Registrant) Name: City of Del Rio Landfill

Customer Reference No. (if issued)*: CN**600756290**

Contact Name: **Alberto Quintanilla** Title: **Public Works Director**

Mailing Address: **114 W. Martin St**

City: **Del Rio** County: **Val Verde** State: **TX** Zip Code: **78840**

(Area Code) Telephone Number: **(830) 774-8525**

Email Address: **alberto.quintanilla@cityofdelrio.com**

TX Secretary of State (SOS) Filing Number:

*If the Site Operator (Permittee/Registrant) does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Site Operator (Permittee/Registrant) as the Customer.

Signature Page

I, Alberto Quintanilla, City Engineer
(Site Operator (Permittee/Registrant)'s Authorized Signatory) City of Del Rio (Title)

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: 9/8/2021

TO BE COMPLETED BY THE OPERATOR IF THE APPLICATION IS SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE OPERATOR

I, _____, hereby designate _____
(Print or Type Operator Name) (Print or Type Representative Name)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

SUBSCRIBED AND SWORN to before me by the said Alberto Quintanilla
On this 8th day of Sept, 2021
My commission expires on the 14th day of March, 2025
Norma Yolanda De Luna
Notary Public in and for
Val Verde County, Texas
(Note: Application Must Bear Signature & Seal of Notary Public)

NORMA YOLANDA DE LUNA
Notary Public, State of Texas
Comm. Expires 03-14-2025
Notary ID 129346661

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS

TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PARTS I/II
GENERAL APPLICATION REQUIREMENTS

Prepared for

City of Del Rio

October 2020
Revision 1 January 2021
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Parts I/II

GENERAL APPLICATION REQUIREMENTS

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APPENDICES

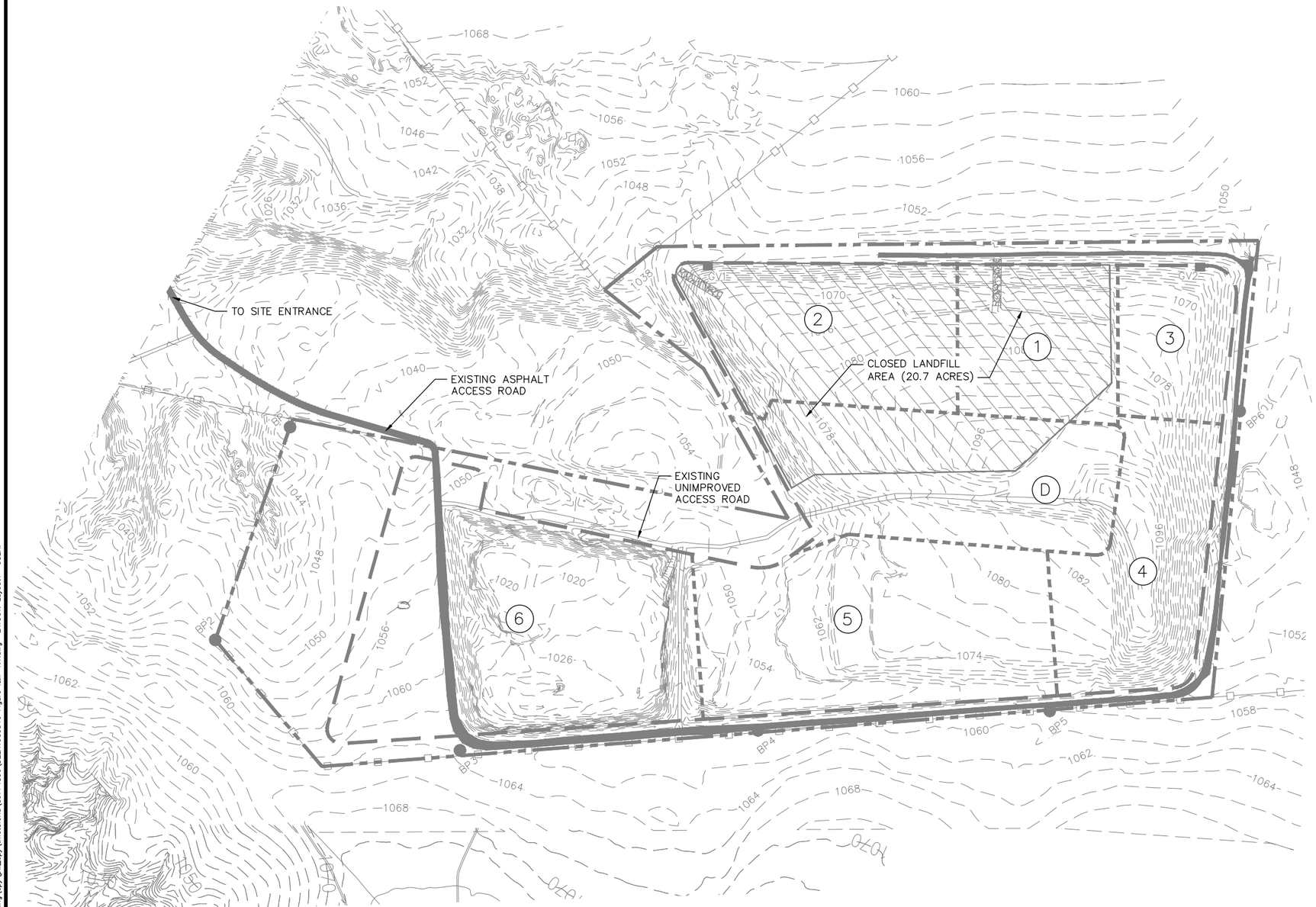
Appendix I/IIA – Facility Layout Maps

Appendix I/IIB – Demonstration of Coordination

Appendix I/IIC – Location Restriction Demonstration

Appendix I/IID – TPDES Permit

Appendix I/IIE – TCEQ Forms



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SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- CELL BOUNDARY
- 1050 EXISTING CONTOURS
- (1) CELL DESIGNATION
- BP1 GAS PROBE
- GV2 GAS VENT
- EXISTING SITE FENCE

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1,2,3,4 & D TOP UPDATED AUGUST 2018 AND CELLS 6 AND 6 UPDATED JANUARY 2020 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON-GOING LANDFILL ACTIVITIES.
2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774-0796. DATED: 10-25-94.
3. CELLS 1, 2 AND A SECTION OF THE PRE-SUBTITLE D WERE APPROVED FOR CLOSURE 2013 BY TCEQ.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF DEL RIO TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

NO.	REVISION	BY	DATE
1.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 2078
MAJOR PERMIT AMENDMENT

EXISTING SITE PLAN

Date:	OCTOBER 2020
Designed:	T. METAERIA
Drawn:	J. TORRES
Reviewed:	B. HINDMAN, P.E.
CP&Y Proj. No.	DELR1900546

FIGURE

I/II-1.1

REFERENCES: DELR1900546_ECBASE.dwg DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVRO SEALS.dwg DELR1900546_ECBASE_LF AREA COMPOSITE
Sep 14, 2021 - 12:59pm C:\pwworking\cpy\pw_cpy\metaferia\d0774896\DELR1900546 Figure I&II-1.1.dwg LAYOUT: Layout1 USER:

Volume of Waste Disposal Capacity

The waste disposal capacity of the site is summarized in Table 2-1.

Table 2-1 – Waste Disposal Capacity Summary

Item	Disposal Capacity	
	Permitted	Permit No. MSW-207B
Consumed Airspace	27,556,896 cy	27,556,896 cy
Remaining Airspace	473,643 cy	473,643 cy
Airspace Gained by Expansion	---	1,347,078 cy
Total Capacity	**28,030,539 cy**	**29,377,617 cy**

[1] Disposal capacity is defined as waste and daily cover. The consumed airspace represents the waste that has been placed at the site as of January 21, 2020.

Disposal Rate Projections

Two estimates have been developed to provide an assessment of the solid waste disposal rate for the Del Rio Landfill. The first estimate is based on the project population growth for the City and Val Verde County, both currently and after the permit is issued. A second estimate was completed based on historical waste inflow data. The projection based on historical data is provided for informational purposes and is not considered in any calculation or demonstration in this application. All calculations provided in the application are based only on the population projections.

The disposal rate projections are discussed in detail in Appendix IIIB and summarized in Table 2-2.

Table 2-2 – Solid Waste Disposal Summary

Method Used to Determine Solid Waste Generation Rate	Initial Waste Inflow	Average Daily Projected Waste Inflow	Maximum Projected Waste Inflow	Population Equivalent (persons)	Site Life (years)
City's Projection	43,399 tons/year 147 tons/day	49,572 tons/year 160 tons/day	56,509 tons/year 183 tons/day	55,628	21.4
Historical Data	45,399 tons/year 147 tons/day	49,445 tons/year 160 tons/day	51,543 tons/year 167 tons/day	54,085	22.1

Currently, the Del Rio Landfill accepts approximately 147 tons/day (45,399 tons per year), based on the 2019 TCEQ Annual Report. The waste inflow rate is assumed to increase consistent with the projected growth rate for the facility's general service area, which for this analysis is assumed to be the City of Del Rio and Val Verde County.

Operating criteria for a range of waste acceptance rates are included in Part IV – SOP. These waste acceptance rates are not a limiting parameter of this permit. The actual yearly waste acceptance rate is a rolling quantity based on the sum of the previous four quarters of waste acceptance (refer to Part IV – SOP for additional information).

The estimated maximum annual waste acceptance rate for the facility for 7 years is shown in the following table.

Year	Waste Acceptance Rate (tons per year)
2036	53,766
2037	54,304
2038	54,847
2039	55,395
2040	55,949
2041	56,509

The projected waste acceptance rate for other years is summarized in Part III, Appendix IIIB.

2.1.6 Solid Waste Containment System

The design objective of the containment system [final cover, Subtitle D liner, overliner, and leachate management systems] is to isolate the solid waste and remove leachate (defined as a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste) that may collect on the liner proposed for the landfill consists of a compacted clay liner and drainage geocomposite. A generalized detail of the containment system for the Del Rio Landfill is shown in Figure 2.2. Design information and the required QA/QC construction procedures for the individual components of the containment system are presented in Part III of this application.

2.1.7 Site Development Plan

The site development plan (SDP) is included in Part III of this application. This plan sets forth the overall design and operating characteristics of the landfill. Drawings showing the proposed landfill configuration during site development are presented in Parts I/II, Appendix I/IIA - Facility Layout Maps. A summary of the landfill configuration is provided below.

- The permit boundary for the existing site is 105.6 acres. The legal description for the proposed permit boundary is included in Section 13 of Parts I/II.

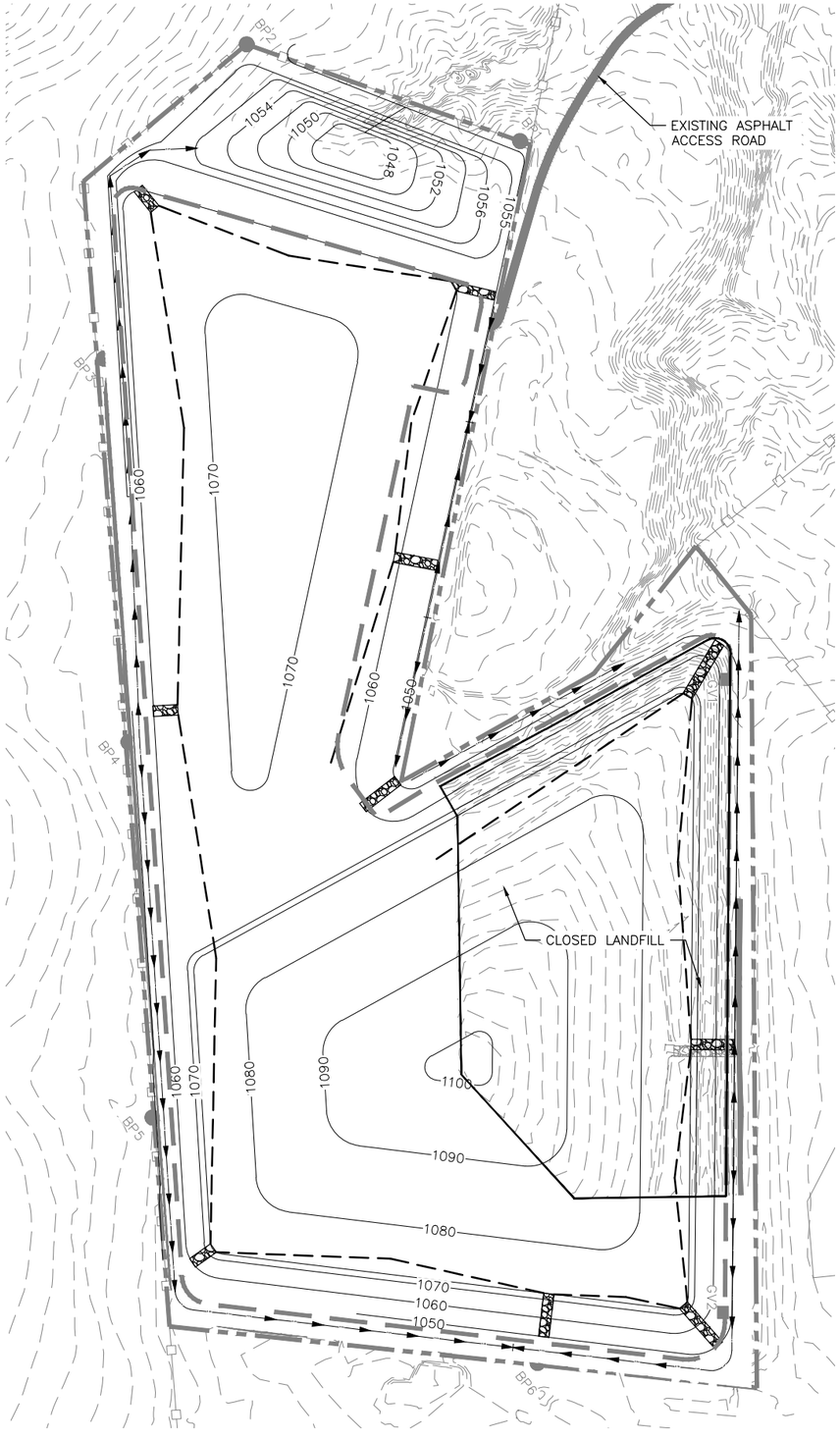
- A summary of the capacity (volume of waste and cover soils) of the site is listed below:

    - Remaining capacity of existing site = 473,643 cubic yards (as of January 21, 2020).

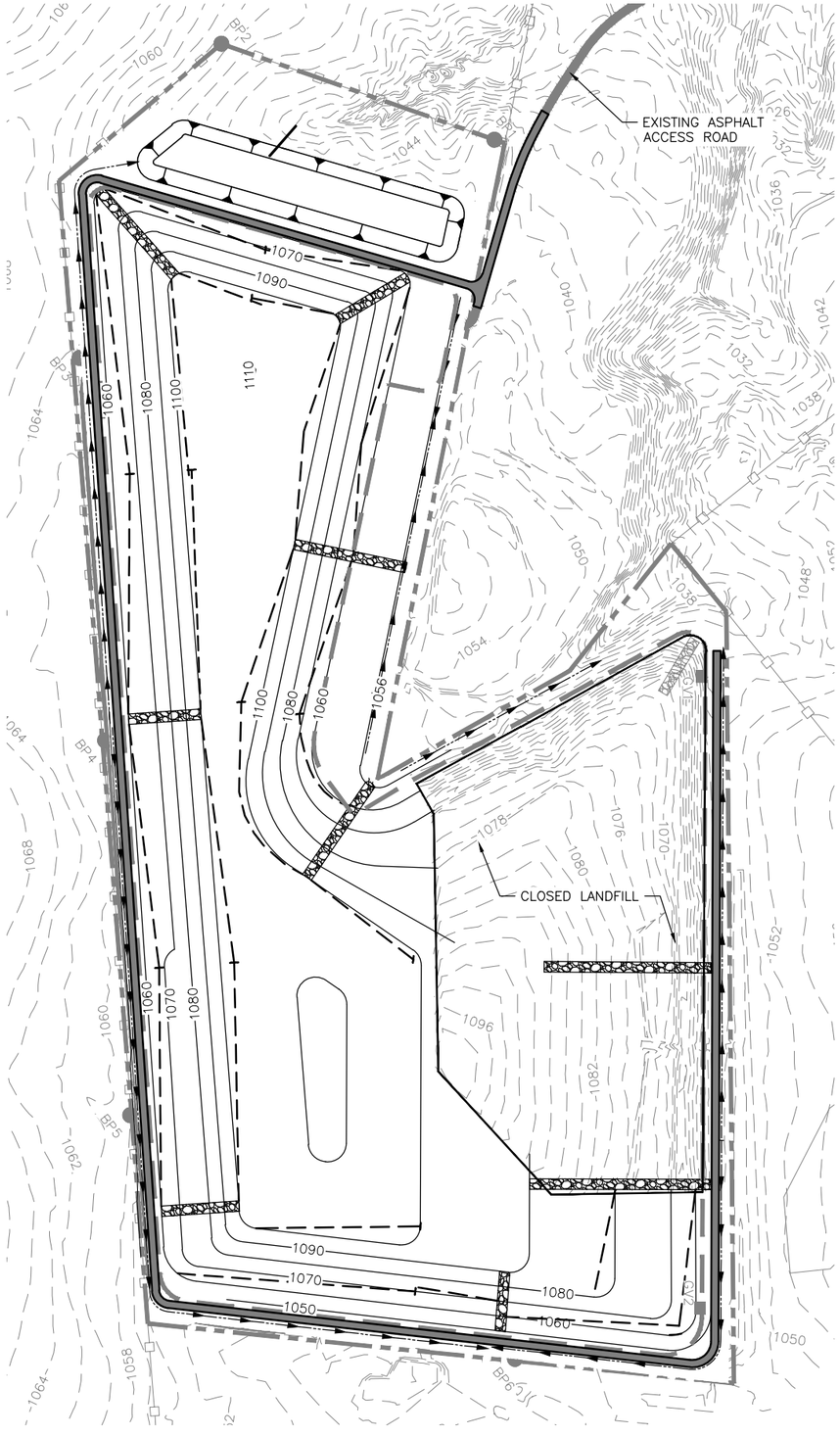
    - Increase due to major permit amendment application = 1.34 million cubic yards.

Remaining capacity of the site with the proposed expansion (TCEQ Permit No. MSW-207B) = 1.82 cubic yards (as of January 21, 2020).

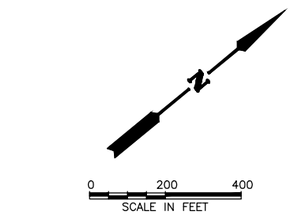
- The maximum elevation of the final cover will be 1113 ft-msl, and the maximum waste elevation will be 1110 ft-msl.



PERMITTED LANDFILL COMPLETION PLAN



PROPOSED LANDFILL COMPLETION PLAN
(TCEQ PERMIT NO. MSW-207B)



LEGEND

- PERMIT BOUNDARY
- CLOSED CELL BOUNDARY
- LIMIT OF WASTE
- 1090 FINAL COVER CONTOURS
- 1084 EXISTING CONTOURS
- SWALES
- PERIMETER CHANNEL
- CHUTES
- BP1 GAS PROBE
- EXISTING SITE FENCE
- PROPOSED ACCESS ROAD
- CUT/FILL MARKERS
- EXISTING CHUTE
- GV2 GAS VENT

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1-5 & D TOPO WAS UPDATED SEPTEMBER, 2018 BY BAIN MEDIA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON-GOING LANDFILL ACTIVITIES.
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CITY OF DEL RIO, TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/17/2021

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	05/2021
2.	2ND NOD	TM	09/2021

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0 1"

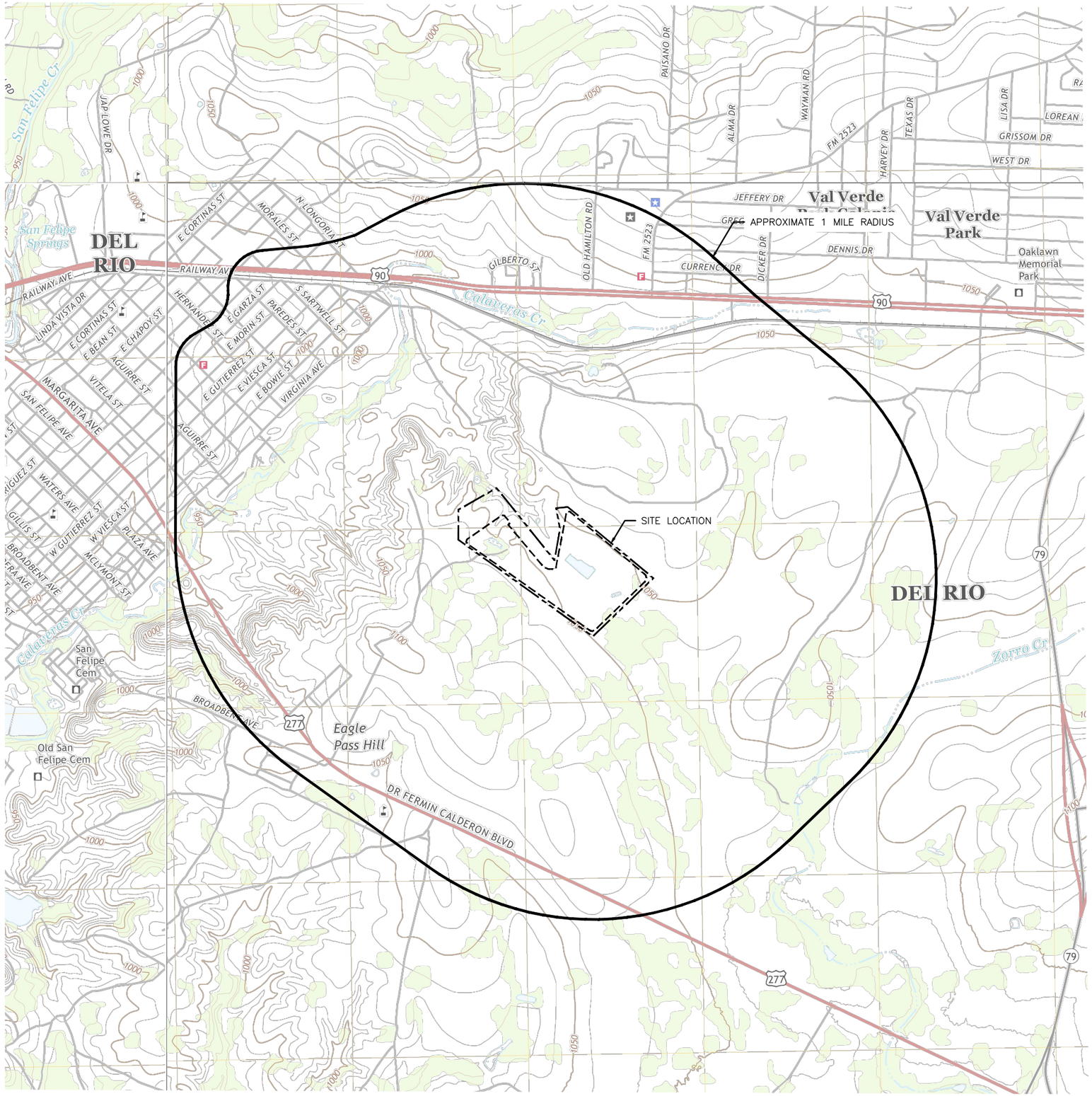
CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

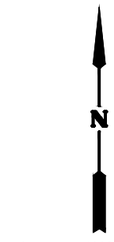
EXISTING AND PROPOSED LANDFILL COMPLETION PLAN

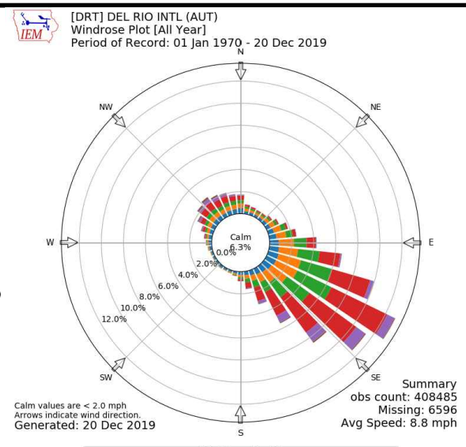
Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
I/II-2.1

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_LF AREA COMPOSITE
Sep 14, 2021 - 1:00pm C:\pwworking\cpy\pw_cpy\tmetaferia\d0774896\DELR1900546 Figure I&II-2.1.dwg LAYOUT: Layout1 USER:







LEGEND

PROPERTY BOUNDARY

LIMITS OF WASTE

NOTES:

1. THE SITE ACCESS ROAD WITHIN HALF A MILE OF THE SITE IS U.S. HIGHWAY 90 AND 277 ARE ASPHALT PAVED ROADS. REFER TO SECTION 8 FOR ADDITIONAL INFORMATION.
2. SEE FIGURE I/II–5.1 FOR PROPERTY OWNERS WITHIN 1/4–MILE OF THE SITE.
3. SEE SECTION 7.2 FOR DISCUSSION OF WATER WELLS.
4. THERE ARE NO KNOWN HISTORIC SITES, DAY CARE CENTERS, KNOWN ARCHEOLOGICALLY SIGNIFICANT SITES, OR SITES OF EXCEPTIONAL AESTHETIC QUALITY LOCATED WITHIN ONE MILE OF THE PROPOSED PERMIT BOUNDARY. REFER TO SECTION 7 FOR ADDITIONAL INFORMATION.
5. REFER TO FIGURE 4.3 FOR LOCATION OF THE NEAREST RESIDENCE.
6. THERE ARE NO AIRPORTS WITHIN 6–MILES OF THE PERMIT BOUNDARY (SEE SECTION 8 FOR MORE INFORMATION).
7. REFER TO APPENDIX I/IIA, DRAWING I/IIA.1 FOR EASEMENT INFORMATION AND DRAWING I/IIA.11 FOR ACCESS CONTROL INFORMATION.
8. THE WIND ROSE IS REPRODUCED FROM THE TEXAS AUTOMATED SURFACE OBSERVING SYSTEM (ASOS) AT THE DEL RIO INTERNATIONAL AIRPORT, THE ASOS IS A JOINT PROGRAM OF THE NATIONAL WEATHER SERVICE, THE FEDERAL AVIATION ADMINISTRATION AND THE DEPARTMENT OF DEFENSE
9. ALL TOPOGRAPHIC INFORMATION REPRODUCED FROM UNITED STATES GEOLOGICAL SURVEY 7 1/2 MINUTE QUADRANGLE SHEETS DEL RIO SE, TX, DEL RIO SW, TX, DEL RIO NE, TX, AN DEL RIO NW, TX.
10. RUBEN CHAVIRA ELEMENTARY SCHOOL IS LOCATED WITHIN ONE MILE OF THE SITE.

Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, August 2016 - November 2016
Roads..... U.S. Census Bureau, 2015 - 2018
Names.....GNIS, 1979 - 2008
Hydrography.....National Hydrography Dataset, 2003 - 2018
Contours.....National Elevation Dataset, 2006 - 2012
Boundaries.....Multiple sources; see metadata file 2016 - 2017

Wetlands.....FWS National Wetlands Inventory 1985

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF DEL RIO
TEXAS

STATE OF TEXAS
TEMOBISTA METAFERIA
123183
LICENSED PROFESSIONAL ENGINEER
09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	09/2021

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0 1"

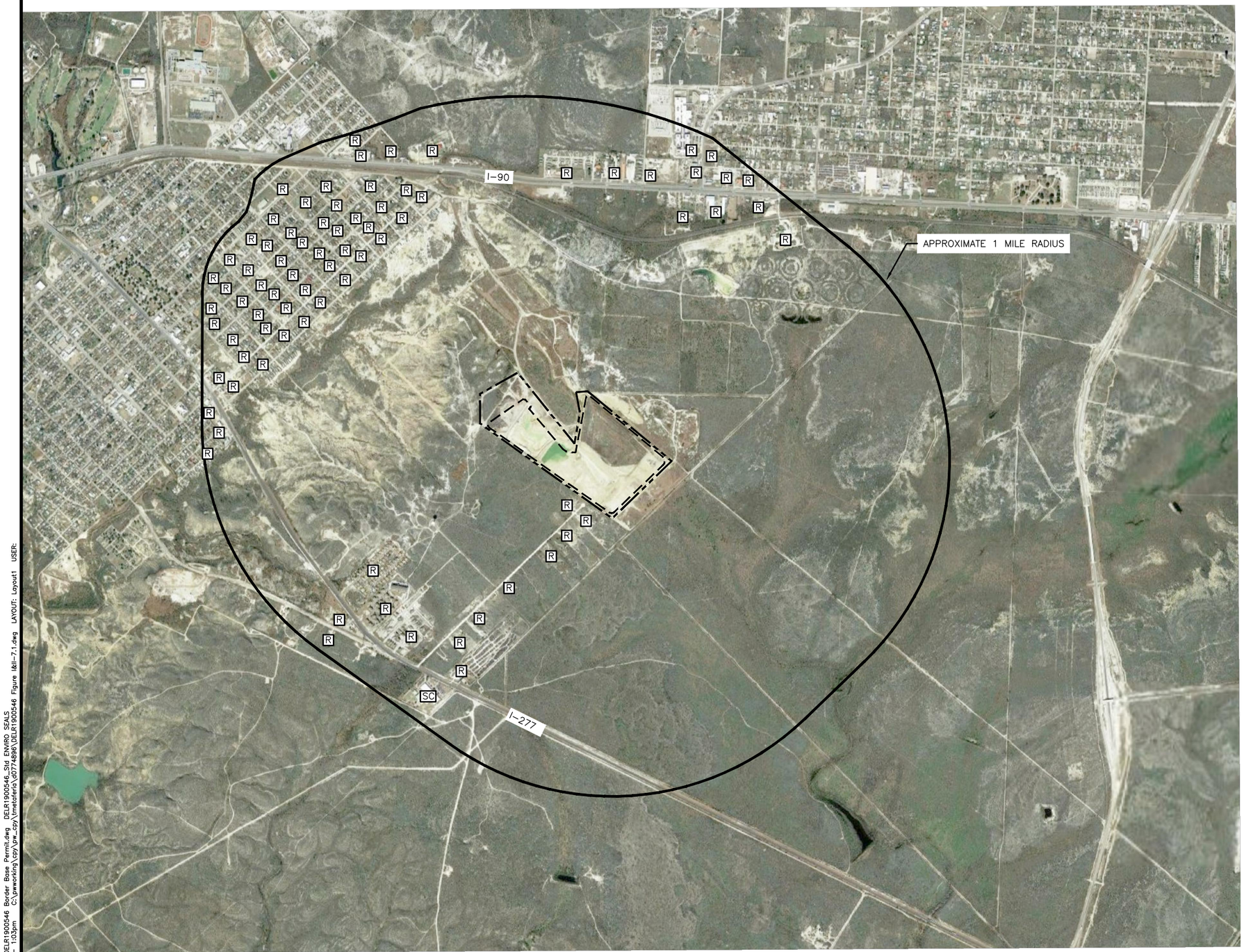
CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

GENERAL TOPOGRAPHIC MAP

Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No: DELR1900546

FIGURE
I/II–4.2

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS
Sep 14, 2021 - 1:02pm C:\pwworking\cpy\cw_cpy\tmetaferia\d0774896\DELR1900546 Figure I&II–4.2.dwg LAYOUT: Layout1 USER:



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SCALE IN FEET

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF WASTE
- [R] RESIDENCE
- [SC] SCHOOL

NOTES:

1. AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED JANUARY 19, 2017.
2. LAND USE IS SHOWN ONLY WITHIN THE ONE-MILE BOUNDARY OF THE SITE.
3. THE ONLY SITE ACCESS ROAD WITHIN ONE-MILE OF THE SITE IS U.S. HIGHWAY 90. REFER TO SECTION 8 FOR ADDITIONAL INFORMATION.
4. REFER TO FIGURE I/II-7.2 FOR SITE ZONING INFORMATION.
5. WITHIN ONE MILE OF THE SITE THERE ARE NO CHURCHES, DAY CARE FACILITIES, HISTORICAL MARKERS, HOSPITALS, OR SITES WITH EXCEPTIONAL AESTHETIC QUALITIES.
6. REFER TO FIGURE I/II4.3 FOR INFORMATION REGARDING STRUCTURES AND INHABITABLE BUILDINGS LOCATED WITHIN 500 FEET OF THE PERMIT BOUNDARY.
7. RUBEN CHAVIRA ELEMENTARY SCHOOL IS LOCATED WITHIN ONE MILE OF THE SITE.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

STATE OF TEXAS
TEMOBISTA METAFERIA
123183
LICENSED
PROFESSIONAL ENGINEER
09/07/2021

NO.	REVISION	BY	DATE
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2.	2ND NOD	TM	09/2021

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0 1"

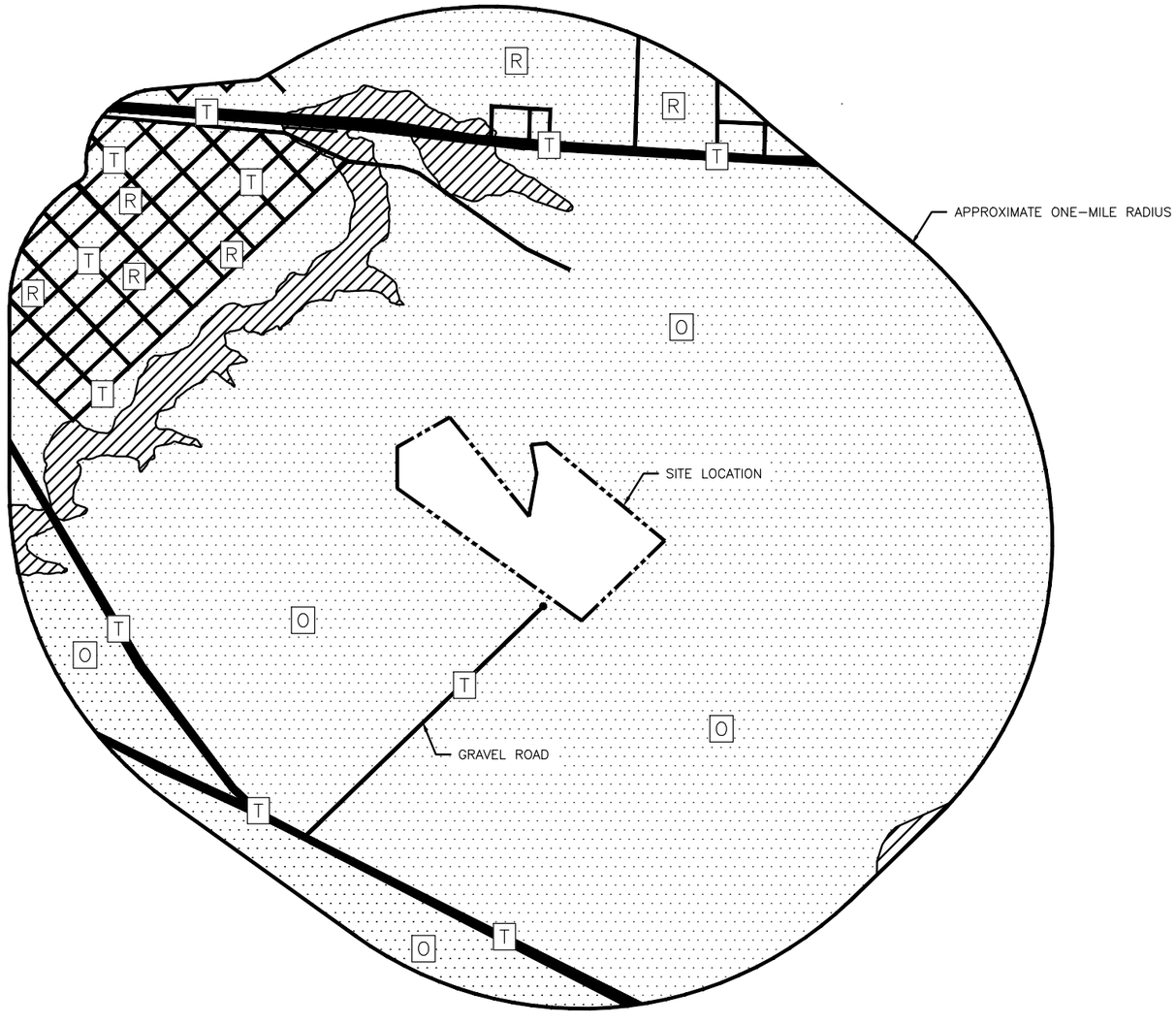
CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

MAJOR PERMIT AMENDMENT
LAND USE MAP-AERIAL

Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No.DELR1900546

FIGURE
I/II-7.1

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS
Sep 14, 2021 - 1:03pm C:\pwworking\cpy\pw_cpy\tmetaferia\d0774898\DELR1900546 Figure I&II-7.1.dwg LAYOUT: Layout1 USER:



N

0 1000 2000
SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- FLOODPLAIN
- T — TRANSPORTATION CORRIDOR
- R — RESIDENTIAL
- O — OPEN SPACE(INCLUDING SCATTERED HOMES)

LAND USE WITHIN 1 MILE OF PERMIT BOUNDARY	
DEL RIO LANDFILL PERMIT BOUNDARY	3.10%
RESIDENTIAL	12.29%
OPEN SPACE (INCLUDING SCATTERED RESIDENCES)	75.90%
FLOODPLAIN	4.67%
TRANSPORTATION CORRIDOR	3.81%
SCHOOL	0.23%
TOTAL	100%

NOTES:

1. REFER TO FIGURE I/II–7.1 FOR LOCATION OF RESIDENCES.
2. ALL ROADS WITHIN ONE MILE OF THE LANDFILL ARE ASPHALT EXCEPT AS NOTED ON THE SITE PLAN.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED — PROFESSIONAL ENGINEER — 09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD – NEW DRAWING	TM	05/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

LAND USE MAP

Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
I/II–7.2

REFERENCES: DELR1900546_Std ENVIRO SEALS.dwg DELR1900546 Border Base Permit
Sep 14, 2021 – 1:03pm C:\pwworking\cpy\pw_cpy\tmetaferia\d0774896\DELR1900546 Figure I&II-7.2.dwg LAYOUT: Layout2 USER:

8 TRANSPORTATION

8.1 Traffic Information

8.1.1 Availability and Adequacy of Roads

The Del Rio Landfill is located within the City of Del Rio in Val Verde County, Texas. The site entrance is located approximately 2.5 miles west of the intersection of US-90 and Loop 79, and approximately 2.3 miles east of the intersection of US-90 and US-277. Trucks hauling waste will use US-90 before turning on to Railway Avenue to access the site. The proposed landfill expansion does not include a change to the location of the site entrance.

Table 8-1 presents a summary of the existing and estimated proposed traffic patterns and vehicle counts for the access roads within one mile of the site. The existing traffic volume for US-90 was obtained using the TxDOT Traffic Web Viewer for the Laredo District published in August 2020. Traffic associated with the landfill is based the daily traffic volume of the landfill.

Table I/II-8.1 – Growth Trends

Existing Traffic Volume 2019					
Daily			Peak Hour [3]		
LF Trips[4]	Non-LF Trips[1]	Total	LF Trips	Non-LF Trips	Total
224	19,062	19,286	22	1,906	1,928
Projected Traffic Volume[2] 2041					
Daily			Peak Hour [3]		
LF Trips	Non-LF Trips	Total	LF Trips	Non-LF Trips	Total
253	21,540	21,793	25	2,154	2,179

Notes:

1. Traffic count data was obtained from 2019 District Traffic Web Viewer.
2. The projected traffic volumes were obtained using projected growth rates for the surrounding area growth rate (non-Landfill vehicles). The growth rates were obtained from the Texas Water Development Board, 2012 and 2016 Regional Water Plan. The annual population increase for 2018-2020 is 2.47%, 2021-2030 is 1.59%, 2031-2040 is 1.76%, 2041-2050 is 1.70%, 2051-2060 is 1.67%, and 2061-site closure is 1.55%.
3. Peak hour volumes are assumed to be ten percent of total daily traffic.
4. Landfill trips estimated from information provided by the City.

As shown in Table 8-1, there is minimal increase in traffic associated with this expansion. US-90 is an asphalt paved four-lane (12-foot lane width) highway with a middle turning lane and 10-foot-wide shoulders on each side. The direct site access road, Railway Avenue is a two-lane (12-foot lane width) asphalt paved road. The existing roads are adequate for the landfill traffic and will continue to provide adequate access to the site throughout the life of the facility. Coordination with TxDOT regarding traffic and location restrictions is included in Appendix I/IIB.

8.2 Airport Impact

TCEQ distance restrictions set forth in Title 30 TAC §330.545 require municipal solid waste disposal facilities to be located no closer than 10,000 feet to any runway end used by turbojet aircraft or no closer

13 LEGAL DESCRIPTION

A legal description of the 105.6-acre permit boundary is included on the following pages. This area is shown on the attached drawing.

The City of Del Rio has 100% ownership of the landfill. Current ownership records for the property may be found in Val Verde County Real Property records.

16 EVIDENCE OF COMPETENCY

16.1 Experience

The Del Rio Landfill is owned by the City of Del Rio and currently being operated by Red River Waste Solution LP. The contractor, or his successor is referred to as the "Landfill Operator" in this plan. The Landfill operator is responsible for the day-to-day operation of the landfill.

The City has owned and successfully managed the Del Rio Landfill for over 30 years. The City does not own, operate or have direct financial interest in other solid waste sites within Texas, other states, territories, or countries. The Del Rio Landfill is the only site that Red River has been operating in Texas the past 10 years. Red River does not have any financial interest in the Del Rio Landfill. Red River does not own, operate or have direct financial interest in any solid waste sites within Texas now or in the past 10 years. Below is a list of sites that Red River has operated within the past 10 years in other states, territories, or countries.

1. Blackhills Environmental Partners, LLC (BHEP)
   Location:
   22297 149th Ave
   Box Elder, SD 57719

   Operating Dates:
   October 2012 - Dec 2016

   Name of Regulatory Agency:
   South Dakota Department of Environment and Natural Resources
   (DENR)
   523 E Capital Ave
   Pierre, SD 57501

2. Fort Knox Refuse and Landfill Services
   Location:
   Fort Knox Landfill
   Baker Rd
   Fort Knox, KY 40121

   Operating Dates:
   April 2014 – April 2019
   April 2020 - Current

   Name of Regulatory Agency:
   Environment Management Division
   US Army Fort Knox, KY

16.2 Del Rio Landfill Key Personnel

The principals and supervisors for the owner and operator of the facility do not have any previous affiliations with other solid waste organizations. The key personnel involved in the management and operations of the Del Rio Landfill are:

16.2.1 Matt Wojnowski, City Manager

The Responsibility for overall facility management and operation rests with the Del Rio City Council. The Council working through the City Manager is responsible for assuring that adequate personnel and equipment are available for facility operation in accordance with the landfill permit. The City Manager delegates responsibility to the City's Public Works Director/City Engineer for directing the activities of the Facility.

16.2.2 Alberto Quintanilla P.E., Public Works Director/City Engineer

The Public Works Director/City Engineer is designated as the contact person for matters related to regulatory compliance and management of the refuse collection and Landfill Operator. Public Works Director/City Engineer plans, organizes, directs, and controls the activities of the department, and specifically supervises the Refuse Department (waste collection and disposal). The Public Works Director/City Engineer has project management responsibility for the landfill, a long-term civil project, including working with outside consulting engineers on landfill construction and planning projects. The Public Works Director/City Engineer oversees landfill development, operation performance of mandated controls, and permit compliance; ensures the timely preparation of recurring reports, such as reports to regulatory agencies; and administers contracts. The Public Works Director/City Engineer studies new regulations, outlining proposed compliance plans, studies and reports of new procedures and equipment, implementation of control procedures including personnel training, and provides administrative continuity in the absence of the Director.

16.2.3 Alejandra Mesa, Landfill Coordinator

Duties include supervising landfill crews, coordinating with the Landfill Contractor (Red River) on the planning, organizing, and direct daily oversight of landfill operations; conducting a variety of technical tasks including scheduling of manpower and equipment; assigning and prioritizing work assignments for the landfill crews; managing waste disposal and diversion; maintaining heavy equipment and instruments; supervising the construction of earthwork projects (levees, berms, ditches, stockpiles, etc.) with onsite labor and equipment; coordinating with other departments and contract construction crews as needed; operating the landfill within the local, state, and federal regulations pertaining to solid waste; managing concerns and complaints from citizens and other landfill users, providing and coordinating staff training and discipline procedures, and maintaining thorough effective communications with the Landfill Contractor. Landfill Coordinator must have demonstrated mechanical knowledge of heavy equipment and the ability to operate desktop personal computer for landfill scale program and daily tracking reports. A high school diploma or equivalent, four years increasingly responsible experience and a Class B Texas driver's license is required. Additional experience in landfill work, computer usage, and supervision is preferred. The Landfill Coordinator shall directly supervise landfill operations and shall possess a TCEQ issued Class A License prescient to 30 TAC Chapter 30, Subsection F, and a waste screening certificate.

16.2.4 James A Smith, CEO (Landfill Contractor)

Mr. James A. Smith, has served as CEO of Red River Waste Solution (RRWS) since its inception. He has also held identical positions in previous closely held government services operating companies, which are now dormant, since 1986. Through his leadership and vision, the present-day company of RRWS

represents an amalgam of the best practices and procedures of the previously active companies. This has allowed RRWS to grow at an exponential rate over the course of its history. He has taken RRWS from a largely Department of Defense service contracting firm to a full-fledged, diversified, provider to city, county and other local government entities and commercial users of the company's services. Jim leads and directs the entire RFP process development and manages our banking, finance/leasing bonding, insurance, and contract negotiation. Mr. Smith has led many similar projects on over 30 military installations. Mr. Smith is firmly at the helm in directing the course the company takes in marketing opportunities. In coordination with the marketing staff, Mr. Smith draws on his vast experience in cost estimating, customer knowledge and marketing know-how to take advantage of hard targets as well as targets of opportunity. He establishes and maintains long term strategic partnerships with financial institutions and insurance carriers to ensure adequate funds and bonding thresholds are available for successful current and on-going company operations. Mr. Smith has served in every capacity in the contract services industry. He has worked from the "trenches" through the highest corporate levels of the business. Mr. Smith has a B.S. in Accounting from Central State University, Edmond, Oklahoma.

16.2.5 Weldon J Smith, President (Landfill Contractor)

Mr. Weldon Smith, President has 22 years of experience in the waste industry, starting back as a helper on the back of a garbage truck. Like his father, Weldon Smith has been around this business his entire life. He first learned about government contracting listening to his father and grandfather discuss business matters. He has a well-developed appreciation for our business philosophy, our commitment to service and the value of the work we do for the hundreds of thousands of customers we serve each day. As President and COO, Mr. Smith works closely with his father. The two are a formidable team and ensure the day-to-day success and that the long-term prognosis for RRWS is on track. One of Weldon's primary responsibilities is operational supervision and management with the operational vice presidents and contract managers. He is a key member of our start-up team; overseeing and implementing our phase-in plan on all new contract starts, to include such tasks as securing and outfitting office and shop areas. Also, Weldon outlines all specifications for ordering equipment for RRWS and serving as the point of contact between the contract start-up activities and the corporate office. He works closely with all contract locations, assisting them with new acquisitions and maintenance and repair needs of existing equipment. He maintains an accurate inventory of the equipment that is in service at the various contracts and ensures the maintenance plan for each piece of equipment is implemented. As the representative of the third generation, Mr. Weldon Smith is following closely in his father's and grandfather's footsteps – leading this company with determination, foresight, and an emphasis on quality performance.

16.2.6 Arthur Jordan, Senior Vice President Operations (Landfill Contractor)

Mr. Jordan monitors the daily performance of the Regional Managers to confirm that the service is operating in strict compliance with the PWS and expectations of the Contracting Agency. Mr. Jordan proudly served 9 years in the United States Army, as a Combat Engineer 12B. He is familiar with collection activities on Military installations. Arthur is also responsible for the adherence to operating standards, the development of supervisory goals and objectives, and the management of labor and expenses. He has several industry certifications; SWANA (MSW) Certified, TCEQ MSW Class A Operator, Texas Class B CDL. Mr. Jordan is hands on and involved in every operation and contract that we serve. He has knowledge of

all aspects of disposal hauling vehicles including front loaders, rear loaders, side loaders, semi-automated, and fully automated trucks.

16.2.7 Robert Montes, Regional Manager (Landfill Contractor)

The Regional Manager manages a staff of 33 employees and is skilled in high quality production. He has completed the Dale Carnegie leadership Training for Managers and has his TCEQ Class A MSW Operator License. He has hands on experience as a laborer, helper, operations duties, administrative duties, as well as landfill management. He handles all daily scheduling of routes, quality control of all routes, budgeting, maintaining all parts and safety management. Robert has an in-depth knowledge of all aspects of disposal hauling vehicles, including commercial side loaders, residential rear loads, roll offs, as well as all landfill equipment, such as dozers, compactor, scrapper, loader, and maintainer.

16.3 Equipment

The equipment listed in Part IV, Site Operating Plan is used to operate this site. Additional or different units of equipment may be provided as necessary to enhance operational efficiency. Other equivalent types of equipment may be substituted for this equipment on an as-needed basis.

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION

APPENDIX I/IIA
FACILITY LAYOUT MAPS

Prepared for
City of Del Rio

October 2020
Revision 1 May 2021
Revision 2 September 2021

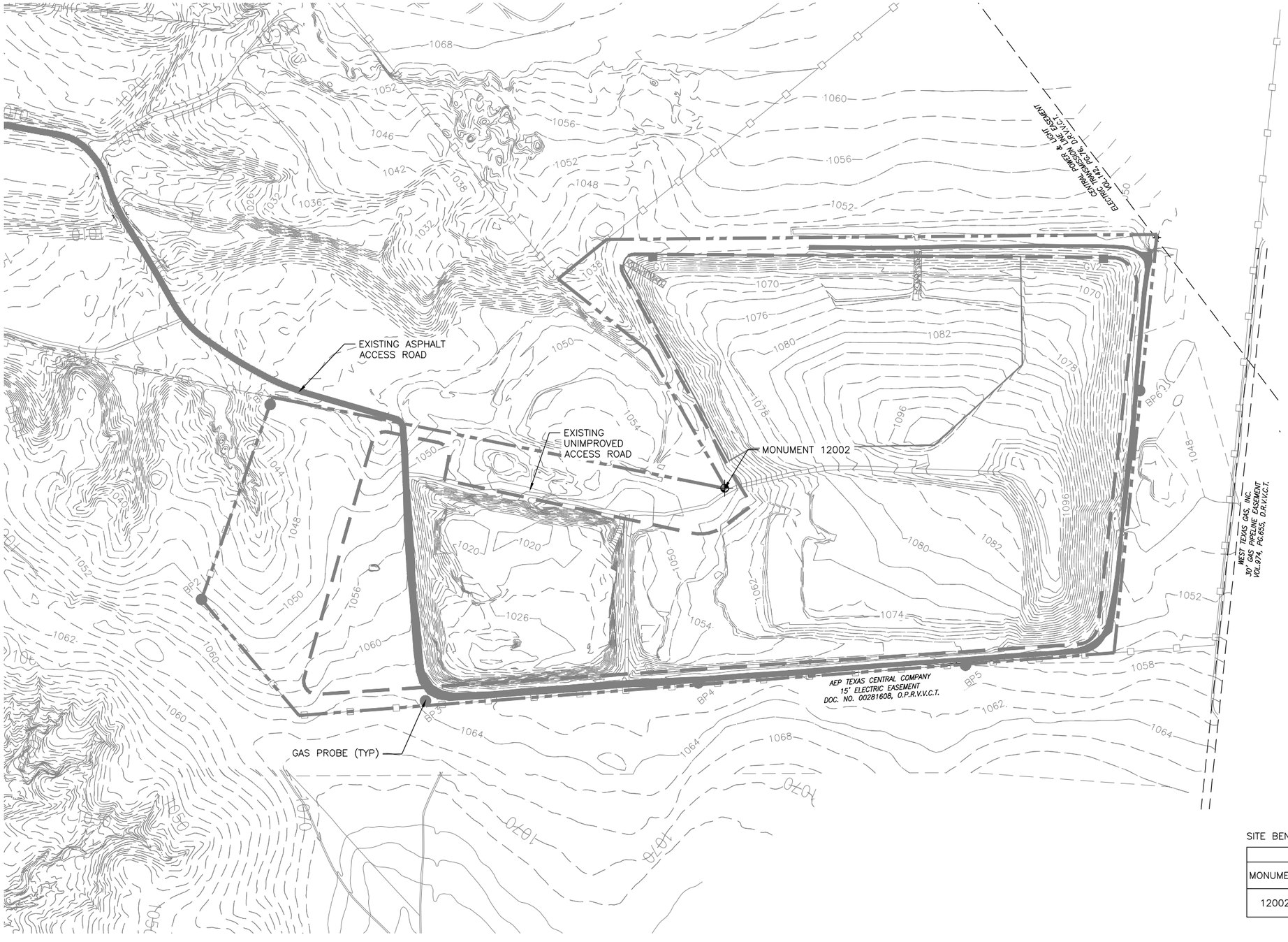
09/07/2021

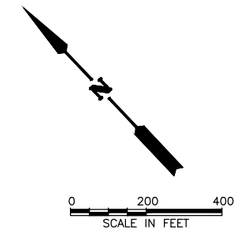
Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

TABLE OF CONTENTS





LEGEND

- PERMIT BOUNDARY
- 1084 — EXISTING CONTOURS
- LIMITS OF WASTE
- GV2 — GAS VENT
- EXISTING SITE FENCE

NOTES:

1. THE FACILITY BUILDINGS ARE NOT LOCATED WITHIN THE PERMIT BOUNDARY.

SITE BENCHMARK INFORMATION IS LISTED BELOW

SITE BENCHMARK INFORMATION			
MONUMENT	NORTHING	EASTING	ELEVATION (FT–MSL)
12002	13681568.26	1378001.94	1051.10

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF DEL RIO TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	05/2021
2.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE

1" 0

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

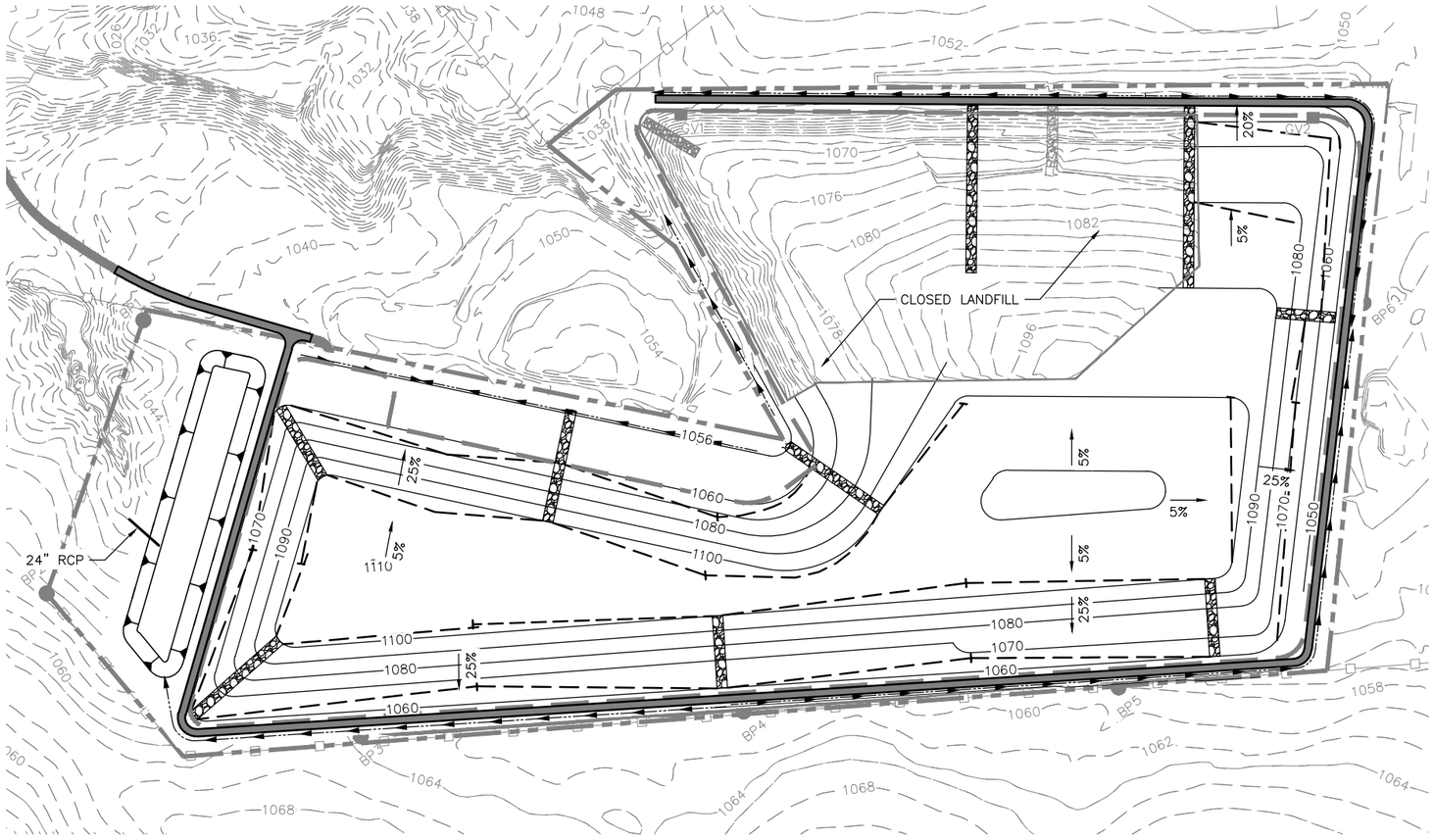
GENERAL SITE PLAN

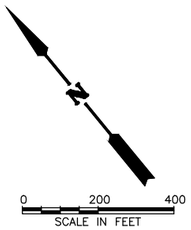
Date: OCTOBER 2020
Designed: T. METAFERIA
Drawn: J. TORRES
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE

A.1

REFERENCES: DELR1900546 Border Base Permit.dwg _Std ENVIRO SEALS.dwg DELR1900546_PCBASE.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546
Sep 14, 2021 - 1:05pm C:\pwworking\cpy\pw_cpy\metaferia\d0774896\DELR1900546 Figure 1&II-A.1.dwg LAYOUT: Layout1 USER:
DELR1900546_ECBASE.dwg DELR1900546_ECBASE_LF AREA COMPOSITE





LEGEND

- PERMIT BOUNDARY
- CLOSED CELL BOUNDARY
- LIMIT OF WASTE
- 1090 — FINAL COVER CONTOURS
- 1084 — EXISTING CONTOURS
- SWALES
- PERIMETER CHANNEL
- CHUTES
- BP1 — GAS PROBE
- EXISTING SITE FENCE
- PROPOSED ACCESS ROAD
- CUT/FILL MARKERS
- EXISTING CHUTE
- GV2 — GAS VENT

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1–5 & D TOPO WAS UPDATED SEPTEMBER, 2018 BY BAIN MEDIA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON–GOING LANDFILL ACTIVITIES.
2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774–0796. DATED: 10–25–94.
3. REFER TO APPENDIX IIIC–LEACHATEAND CONTAMINATED WATER MANAGEMENT PLAN FOR CONTAMINATED WATER RUN–ON/RUN–OFF BERM DESIGN INFORMATION.
4. THE SECTOR DEVELOPMENT SHOWN ON THIS DRAWING SHOWS THE GENERAL SEQUENCE OF FILLING OPERATIONS. THE LOCATION OF THE ALL–WEATHER ACCESS ROAD FROM THE LANDFILL HAUL ROAD TO THE ACTIVE AREA WILL BE DETERMINED DURING SITE OPERATIONS.
5. INTERMEDIATE COVERS CONSIST OF A 12–INCH THICK SOIL LAYER. REFER TO PART IV – SITE OPERATING PLAN FOR ADDITIONAL SOIL COVER REQUIREMENTS.
6. LANDFILL HAUL ROAD WILL BE SURFACED WITH CRUSHED STONE TO PROVIDE–WEATHER ACCESS.
7. REFER TO APPENDIX IIIF–SURFACE WATER DRAINAGE PLAN FOR THE EROSION SEDIMENTATION CONTROL PLAN. DRAINAGE STRUCTURES ARE SHOWN AS THE SITE DEVELOPS. ADDITIONALLY BMPS WILL BE SUED TO CONTROL EROSION AS NEEDED.
8. REFER TO APPENDIX IV FOR LANDFILL GAS MANAGEMENT PLAN.
9. TEMPORARY CHUTES AND SWALES WILL BE PLACED OVER THE INTERMEDIATE COVER AREA TO MINIMIZE EROSION AND HELP ESTABLISH VEGETATION FOR INTERMEDIATE COVER AREAS THAT WILL NOT RECEIVE WASTE OF FINAL COVER WITHIN 180 DAYS AFTER PLACEMENT (REFER TO APPENDIX IIIF–G FOR MORE INFORMATION). MULCH, HYDROSEEDING OR SIMILAR METHODS WILL BE SUED TO ESTABLISH VEGETATION OVER THE INTERMEDIATE COVER AREAS. SWALE AND LETDOWN SPACING WILL MEET THE REQUIREMENTS OF THE EROSION CONTROL PLAN INCLUDED IN APPENDIX IIIF–G.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF DEL RIO TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

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2.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

SECTOR DEVELOPMENT PLAN

Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
A.4

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_...
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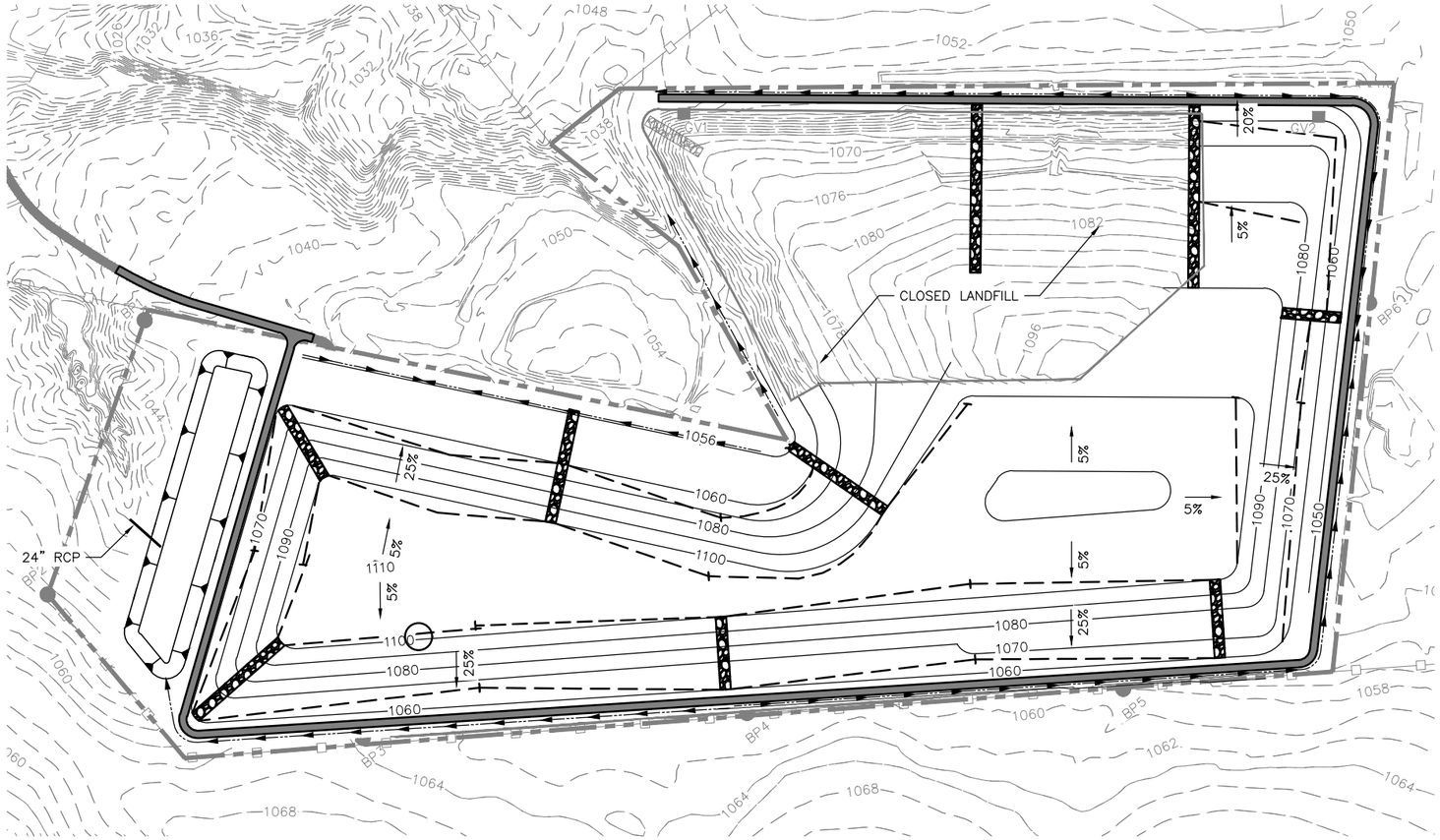

0 200 400
SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- CLOSED CELL BOUNDARY
- LIMIT OF WASTE
- 1090 FINAL COVER CONTOURS
- 1084 EXISTING CONTOURS
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- EXISTING CHUTE
- GV2 GAS VENT

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2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774–0796. DATED: 10–25–94.
3. REFER TO APPENDIX IIIF–SURFACE WATER DRAINAGE PLAN FOR DRAINAGE DESIGN INFORMATION.
4. MAXIMUM FINAL COVER ELEVATION IS 1113 FT–MSL MAXIMUM TOP OF WASTE ELEVATION IS 1109 FT–MSL.
5. TYPICAL SIDESLOPES ARE 4H:1V, TYPICAL TOPSLOPE IS 5%.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

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BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE

VERIFY SCALE 1" 0

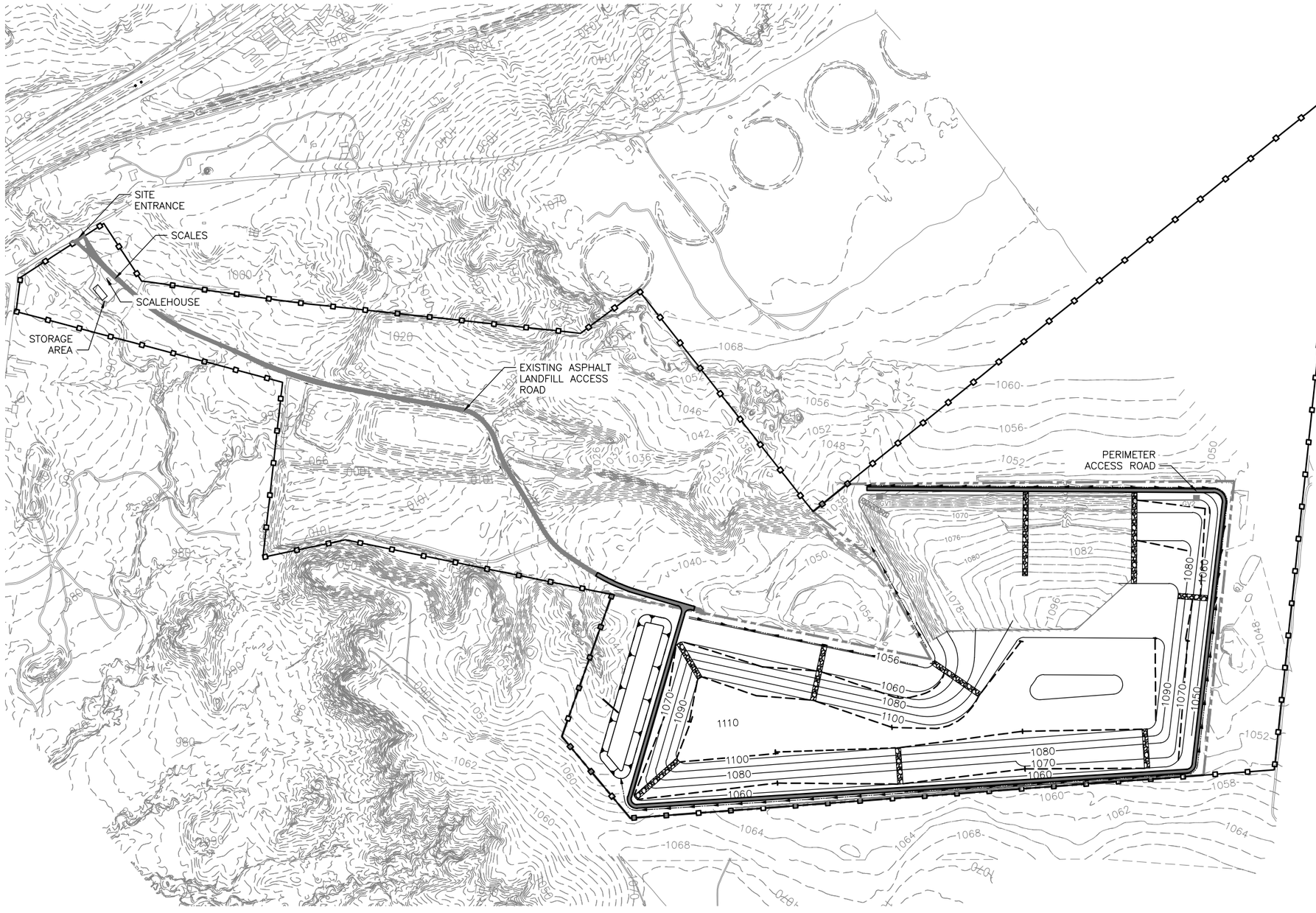
CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 2078
MAJOR PERMIT AMENDMENT

LANDFILL COMPLETION PLAN

Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
A.5

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_ECBASE_LF AREA COMPOSITE
Sep 14, 2021 – 1:12pm C:\pwworking\cpy\pw_cpy\tmetaferia\d0774896\DELR1900546 Figure 1&II–A.5.dwg LAYOUT: Layout1 USER:



N

0 300 600
SCALE IN FEET

LEGEND

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- LIMIT OF WASTE
- 1090 FINAL COVER CONTOURS
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2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774–0796. DATED: 10–25–94.
3. ACCESS TO THE SITE WILL BE CONTROLLED BY PERIMETER FENCING (MINIMUM 4–FEET HIGH, 3 STRAND BARBED WIRE FENCES), A GATED ENTRANCE, AND NATURAL BARRIERS (E.G DENSE FOLIAGE AND VEGETATION). THE ACCESS CONTROL PLAN IS PROVIDED TO PREVENT ENTRY OF LIVESTOCK, TO PREVENT THE PUBLIC EXPOSURE TO POTENTIAL HEALTH AND SAFETY HAZARDS, AND TO DISCOURAGE UNAUTHORIZED ENTRY OR UNCONTROLLED DISPOSAL OF SOLID WASTE OR HAZARDOUS MATERIAL. NO TRESPASSING SIGNS WILL BE ADDED TO DISCOURAGE UNAUTHORIZED ENTRY OR UNCONTROLLED DISPOSAL OF SOLID WASTE OR HAZARDOUS MATERIAL.
4. ALL THE LFG MONITORING PROBES ARE LOCATED WITHIN THE PERIMETER FENCE.
5. THERE ARE NO NATURAL WINDBREAKS ON SITE.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F–1741

CITY OF Del Rio TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

REVISION	BY	DATE
1ST NOD	TM	05/2021
2ND NOD	TM	09/2021

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2.	

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

ACCESS CONTROL PLAN

Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
A.7

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546 Figure I&II–A.7.dwg LAYOUT: Layout1 USER: Sep 14, 2021 – 1:14pm C:\pwworking\cpy\pw_cpy\tmetaferia\d0774896\DELR1900546_ECBASE_LF AREA COMPOSITE
DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_ECBASE_LF AREA COMPOSITE

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION

APPENDIX I/IIB
DEMONSTRATION OF COORDINATION

- Coordination with Federal Aviation Administration
- Coordination with Texas Historical Commission
- Coordination with Texas Department of Transportation
- Coordination with Texas Parks and Wildlife Department
- Coordination with U.S. Army Corps of Engineers
- Coordination with U.S. Department of the Interior Fish and Wildlife Service
- Coordination with Middle Rio Grande Development Council

COORDINATION WITH
U.S. DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE

- May 19, 2021, U.S. Department of the Interior Fish and Wildlife Service conclusion of no impact on Fish and Wildlife.
- May 28, 2020, Request for Review Letter.

From: Sommer, Tanya <Tanya_Sommer@fws.gov>
Sent: Wednesday, May 19, 2021 10:16 AM
To: Tewobista Metaferia
Subject: Re: [EXTERNAL] RE: follow up - City of Del Rio Landfill Vertical Expansion

Hello,

We have no comment on the Del Rio landfill project.

Sincerely,
Tanya

Tanya Sommer
Assistant Field Supervisor
Austin Ecological Services Field Office
Austin, Texas
cell: 512-850-0980

From: Tewobista Metaferia <tmetaferia@cpyi.com>
Sent: Wednesday, May 19, 2021 8:55 AM
To: Bills, Debra <debra_bills@fws.gov>; Zerrenner, Adam <Adam_Zerrenner@fws.gov>; Sommer, Tanya <Tanya_Sommer@fws.gov>
Cc: Bocanegra, Omar <omar_bocanegra@fws.gov>; Orsak, Erik <erik_orsak@fws.gov>
Subject: RE: [EXTERNAL] RE: follow up - City of Del Rio Landfill Vertical Expansion

Good morning,

I wanted to follow up and check the status of our submittal.

Thanks,
Tewobista

From: Bills, Debra <debra_bills@fws.gov>
Sent: Wednesday, April 21, 2021 3:55 PM
To: Tewobista Metaferia <tmetaferia@cpyi.com>; Zerrenner, Adam <Adam_Zerrenner@fws.gov>; Sommer, Tanya <Tanya_Sommer@fws.gov>
Cc: Koy Dieckow <kdieckow@cpyi.com>; Bocanegra, Omar <omar_bocanegra@fws.gov>; Orsak, Erik <erik_orsak@fws.gov>
Subject: Re: [EXTERNAL] RE: follow up - City of Del Rio Landfill Vertical Expansion

Thank you so much for following up. And I do apologize for the delay in responding. To further complicate this, your letter should have been sent to the Fish and Wildlife Service in Austin. The attachment that you sent states that

This species list is provided by:
Austin Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, TX 78758-4460
(512) 490-0057

I have forwarded this information to my counterpart in that Austin office. I hope that you receive the necessary response soon.
Thank you for your patience.
Debra Bills, Project Leader
US Fish and Wildlife Service
Arlington TX 76006
817-277-1100 ext 22113
cell 602-377-4831

From: Tewobista Metaferia <tmetaferia@cpyi.com>
Sent: Wednesday, April 21, 2021 12:29 PM
To: Bills, Debra <debra_bills@fws.gov>
Cc: Koy Dieckow <kdieckow@cpyi.com>
Subject: [EXTERNAL] RE: follow up - City of Del Rio Landfill Vertical Expansion

Debra,

I have attached the letter that was sent. It was delivered to your office on May 29, 2020 and singed for by C. Cooper. Just to give you a background information, we are doing a vertical landfill expansion in Del Rio, TX. As part of the expansion application that was submitted to TCEQ, we have to show coordination with the US Fish and Wildlife Services. We completed the IPac Threaten and Endangered Species Assessment for the landfill area. So now we need a confirmation letter from the US Fish and Wildlife Services to show coordination per TCEQ requirements. Please review the attachment and let me know if you need additional information.

Thanks,
Tewobista Metaferia, P.E.

1820 Regal Row, Suite 200
Dallas, TX 75235
P: 214.589.6944 | **F:** 214.638.3723
tmetaferia@cpyi.com | www.cpyi.com
Connect with us:

From: Koy Dieckow <kdieckow@cpyi.com>
Sent: Wednesday, April 21, 2021 11:54 AM
To: Tewobista Metaferia <tmetaferia@cpyi.com>
Subject: Fwd: follow up

Get Outlook for iOS

From: Bills, Debra <debra_bills@fws.gov>
Sent: Wednesday, April 21, 2021 11:49:59 AM

To: Koy Dieckow <kdieckow@cpyi.com>
Subject: follow up

Thank you for your call this morning - I am not finding any projects from you. Will you please give me additional details on the project that you sent to our office?
Debra Bills, Project Leader
US Fish and Wildlife Service
Arlington TX 76006
817-277-1100 ext 22113
cell 602-377-4831

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS

TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION

PART III — SITE DEVELOPMENT PLAN

Prepared for
City of Del Rio

October 2020
Revision 1, May 2021
Revision 2, September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

Tewobista Metaferia
09/07/2021

STATE OF TEXAS
TEWOBISTA METAFERIA
123183
LICENSED
PROFESSIONAL ENGINEER

Part III

Site Development Plan

TABLE OF CONTENTS

TABLES

APPENDICES

2.2.2 Waste Disposal Schematic View (§330.63(b)(2)(B))

Figure III-2 provides a schematic view of the Del Rio Landfill. There are no additional waste processing units within the permit boundary. Additional detailed drawings are provided in Parts I/II, Appendix I/IIA; Part III, Appendix IIIA; and throughout the SDP.

2.2.3 Ventilation and Odor Control (§330.63(b)(2)(C))

Landfill disposal operation will occur in open areas within the permitted waste disposal footprint; therefore, adequate ventilation will be provided. The site will comply with all the applicable air quality rules and regulations. The site will be required to operate in accordance with the New Source Performance Standards (NSPS) for MSW landfills, if applicable.

Steps will be taken to limit the impact of the facility's operation on air quality. Among the measures set forth in Part IV - SOP to be employed are the following:

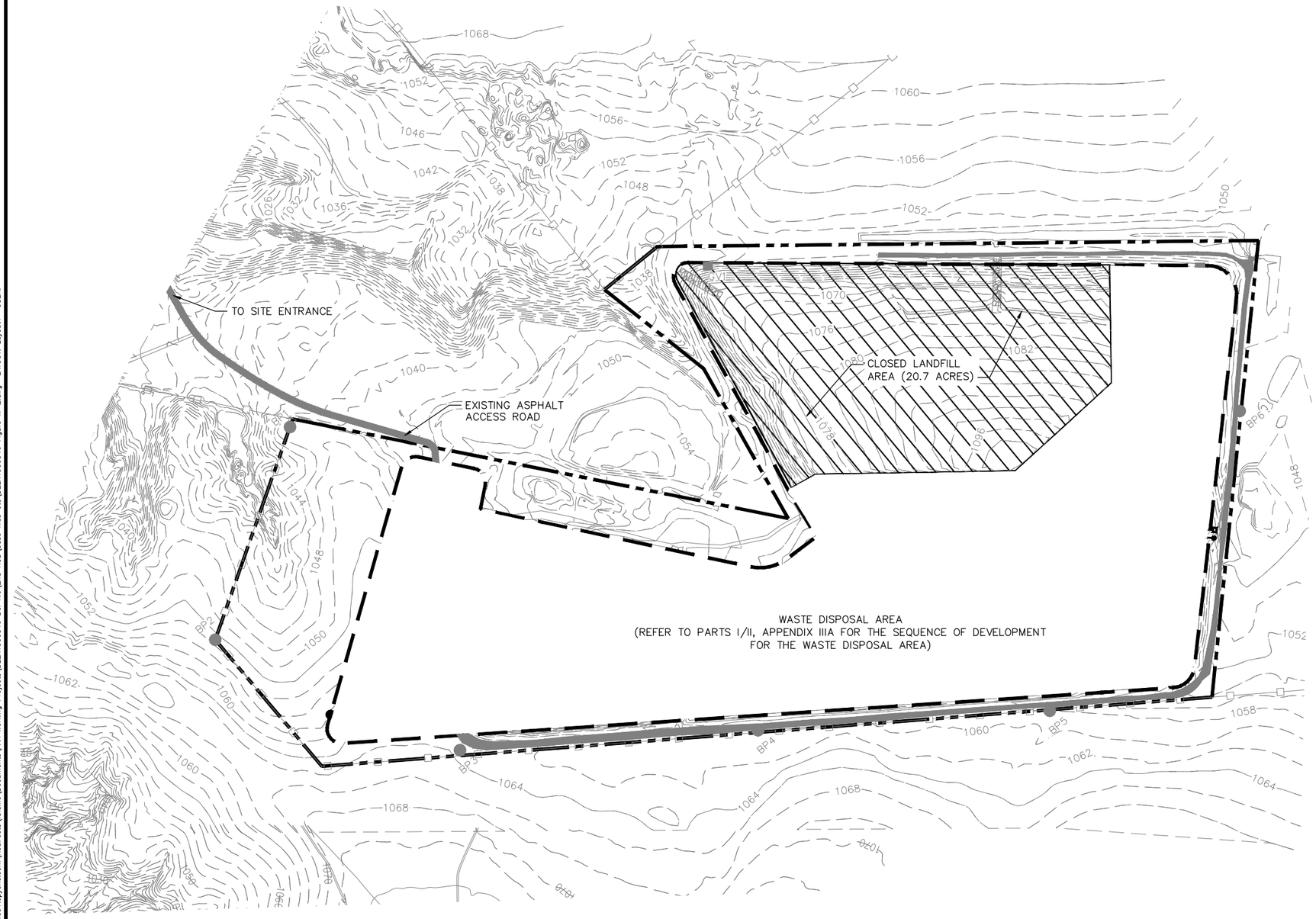
- Accidental fires will be controlled.
- Open burning of waste will not be permitted.
- Incoming waste will be promptly compacted into the working face area.
- Ponded water at the site will be controlled.

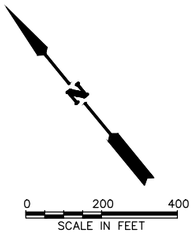
Odors shall be controlled at the site and will be reduced if they occur in accordance with the Odor Management Plan included in Part IV - SOP. Sources of landfill odor can vary considerably and may include the wastes being delivered to the landfill, the open working face, surface emissions from the covered portion of the landfill, or the leachate collection system. Many of the wastes received at a landfill are a source of odor upon receipt, such as sludge and dead animals. Other wastes have the potential for becoming a source of odor by their biodegradable characteristics, generating gases as they advance through the decomposition process. Leachate may also be a source of odor if not properly handled or disposed of in a timely manner. Among the measures listed in Part IV - SOP that may be employed to reduce potential odors are the following.

- Minimize the size of the working face area.
- Increase the thickness of soil daily cover and/or ADC applied to the working face.
- Prevent ponded water. Ponded water will be prevented through the use of lateral drainage.
- Identify any waste stream that requires special attention to control odor. If the Scale Operator notes a load with significant odors, they will notify the working face personnel. The load will be promptly covered with soil or solid waste when it arrives at the working face.

2.2.4 Generalized Construction Details (§330.63(b)(2)(D))

Generalized construction details for the landfill are included in Parts I/II, Appendix I/IIA and in this SDP (e.g., Appendix IIIA). Details of the leachate management system are included in Appendix IIIC.





LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- 1050 EXISTING CONTOURS
- EXISTING SITE FENCE

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1,2,3,4 & D TOP UPDATED AUGUST 2018 AND CELLS 6 AND 6 UPDATED JANUARY 2020 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON-GOING LANDFILL ACTIVITIES.
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3. CELLS 1, 2 AND A SECTION OF THE PRE-SUBTITLE D WERE APPROVED FOR CLOSURE 2013 BY TCEQ.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF DEL RIO TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
1" 0

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

SITE PLAN

Date: OCTOBER 2020
Designed: T. METAERIA
Drawn: J. TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
III-2

REFERENCES: DELR1900546_EGBASE.dwg DELR1900546 Border Base Permit.dwg DELR1900548_Std ENVIRO SEALS.dwg DELR1900546_EGBASE_LF AREA COMPOSITE
Sep 14, 2021 - 1:23pm \\dalfile01.cpyone.com\Redirects\tblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure III-2.dwg LAYOUT: Layout1 USER:

4 LANDFILL UNIT DESIGN (§330.63(d)(4))

Consistent with Title 30 Texas Administrative Code (TAC) §330.63(d)(4), this Site Development Plan was prepared to address the requirements for the landfill unit at the Del Rio Landfill. The following subsections discuss provisions for all-weather operations and access, the proposed landfill method, minimum and maximum design elevations, solid waste acceptance rates, site life, cross-sections and design details, and a liner quality control plan. In addition to these items as required by §330.63(d)(4), additional information regarding the geotechnical analyses, the liner design, and leachate management are also presented.

4.1 All-Weather Operation (§330.63(d)(4)(A))

The landfill perimeter roads, haul road, and interior access roads will be constructed of crushed stone, gravel, or other suitable material and will provide access from the entrance road to the fill area. The perimeter road around the site is a minimum of 15 feet wide. Railway Avenue is an asphalt paved roadway that provides access to the entrance facilities. From the entrance facilities, the landfill haul road is a asphalt road that extends approximately one mile and then transitions from asphalt to an un-improved haul road within the limits of the cell boundaries. The paved access road and haul road will serve as mud control for waste hauling vehicles prior to exiting the site and returning to the site access roads. The paved asphalt road and perimeter im-improved road will be maintained for all-weather access by site personnel. As necessary crushed stones may be added to perimeter un-improved roads using on-site stockpiles of crushed stone, concrete rubble, masonry demolition debris, or other similar material will be provided as needed for use in maintaining passable access roads. Grading equipment or other appropriate equipment will be used, as necessary, to control or remove mud accumulations on the perimeter access road around the landfill, the landfill haul road, and the paved entrance facility area.

The landfill haul road and perimeter roads will be passable under inclement weather conditions to allow access to the working face area.

4.2 Landfill Methods (§330.63(d)(4)(B))

The proposed landfill development method for the site is a combination of area-excavation fill followed by aerial fill to the proposed landfill completion height.

The landfill drawings depicting existing site conditions, excavation, final fill height, sector fill layout, sector sections, sequence of development plans, site contour maps, and landfill completion plan are included in Parts I/II, Appendix I/IIA - Facility Layout Maps.

The excavation side slopes will be no steeper than 2 horizontal to 1 vertical (2H:1V), the aerial fill side slopes will be approximately 4H:1V, and the aerial fill top slope will be approximately 5 percent. Final cover placement will generally follow the sequence of development as shown in Parts I/II, Drawing I/IIA.4, and will be ongoing as the site is developed. Sectors will be closed according to the closure plan provided in Appendix IIIE - Closure Plan.

4.3 Liner and Final Cover System Design (§330.63(d)(4)(C))

4.3.1 Liner System for the Undeveloped Portion of the Solid Waste Disposal Area

The existing liner system is approved for Cells 1-6. The approval letter is included in Appendix IIID-A. The deepest excavation elevation is 1015 ft-msl. The minimum and maximum waste elevations are 1017 ft-msl and 1109 ft-msl. The maximum final cover elevation is 1113 ft-msl.

Table III-1 – Liner System Components

Liner System
2-foot-thick Soil Protective Cover
Drainage Geocomposite Leachate Collection System Layer
2-foot-thick Compacted Clay Liner (CCL)

A summary of the liner system design for proposed liner areas and existing constructed areas and the liner system details are included in Part III, Appendix IIIA – Landfill Unit Design Information. Information regarding liner materials and construction quality assurance are included in Part III, Appendix IIID – Liner Quality Control Plan. The elevation of the deepest excavation for Cell 6 is 1020 ft-msl.

4.3.2 Overliner System for the Pre-Subtitle D Area

The proposed overliner system for the pre-Subtitle D area of the landfill is designed consistent with Title 30 TAC §330.331(a)(1). The proposed system is designed to convey leachate generated over the existing pre-Subtitle D area to the Subtitle D area with a leachate collection system. The overliner system is described below with layers listed from top to bottom.

Table III-2 – Overliner System Components

Composite Overliner System
24-inch-thick Soil Protective Cover
Drainage Geocomposite Leachate Collection Layer
40-mil LLDPE Texture Geomembrane
Geosynthetic Clay Liner (GCL)

The proposed ovelriner system design and details are also summarized in Appendix IIIA – Landfill Unit Design Information.

4.3.3 Leachate Collection System

A Leachate Collection System (LCS) has been designed to remove leachate from the Subtitle-D areas of the landfill. The LCS layout is shown on Drawing A.1 - Excavation Plan in Appendix IIIA-A. Design of the proposed LCS and a demonstration of the adequacy of the existing LCS is discussed in Part III, Appendix IIIC - Leachate and Contaminated Water Management Plan. LCS details are provided in Part III, Appendix IIIA - Landfill Unit Design Information. Information regarding materials and construction quality assurance are included in Part III, Appendix IIID –Liner Quality Control Plan (LQCP).

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIA
LANDFILL UNIT DESIGN INFORMATION

Prepared for

City of Del Rio

October 2020

Revision 1, May 2021
Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

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Appendix IIIA-B – Landfill Unit Cross Sections

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIA-A
LINER, OVERLINER AND FINAL COVER SYSTEM DETAILS

Prepared for

City of Del Rio

October 2020
Revision 1 May 2021
Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

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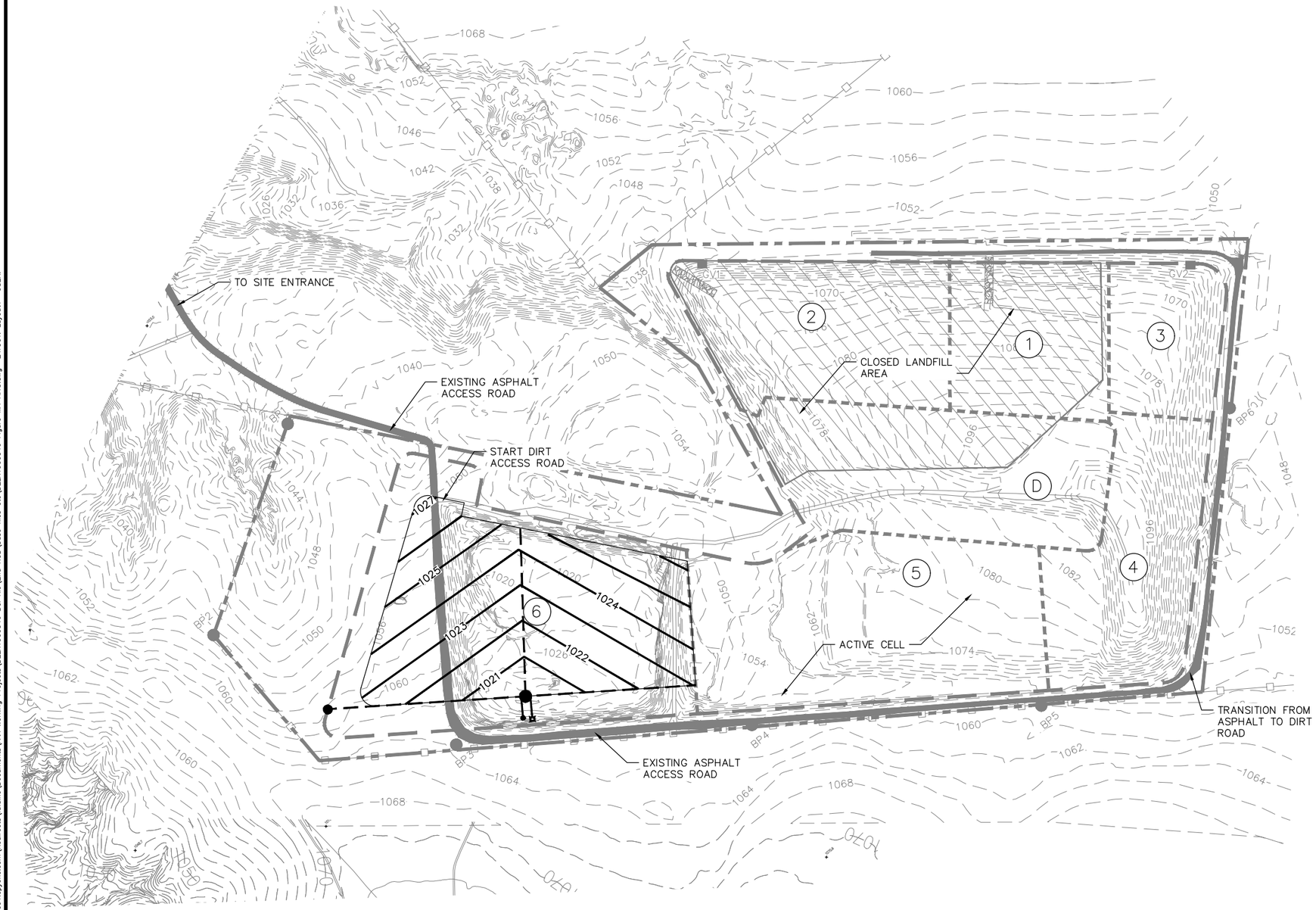
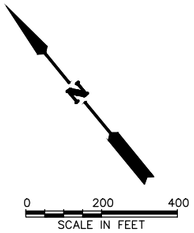
TABLE OF CONTENTS





LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- CELL BOUNDARY
- 1050 — EXISTING CONTOURS
- 1024 — PERMITTED EXCAVATION CONTOURS (SEE NOTE 5)
- PERMITTED LEACHATE COLLECTION PIPES
- LEACHATE RISER AND CLEANOUT PIPES
- 1 — CELL DESIGNATION
- BP1 — GAS PROBE
- GV2 — GAS VENT

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1,2,3,4 & D TOP UPDATED AUGUST 2018 AND CELLS 6 AND 6 UPDATED JANUARY 2020 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON-GOING LANDFILL ACTIVITIES.
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3. CELLS 1, 2 AND A SECTION OF THE PRE-SUBTITLE D WERE APPROVED FOR CLOSURE 2013 BY TCEQ.
4. ALL ROADS WITHIN THE LIMITS OF WASTE ARE DIRT ROADS.
5. EXCAVATION CONTOURS, LEACHATE COLLECTION PIPES, AND THE LEACHATE COLLECTION RISER AND CLEAN OUT PIPES ARE REPRODUCED USING THE 1994 PERMITTED EXCAVATION PLAN.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

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1.	2ND NOD - NEW DRAWING	TM	09/2021

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CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

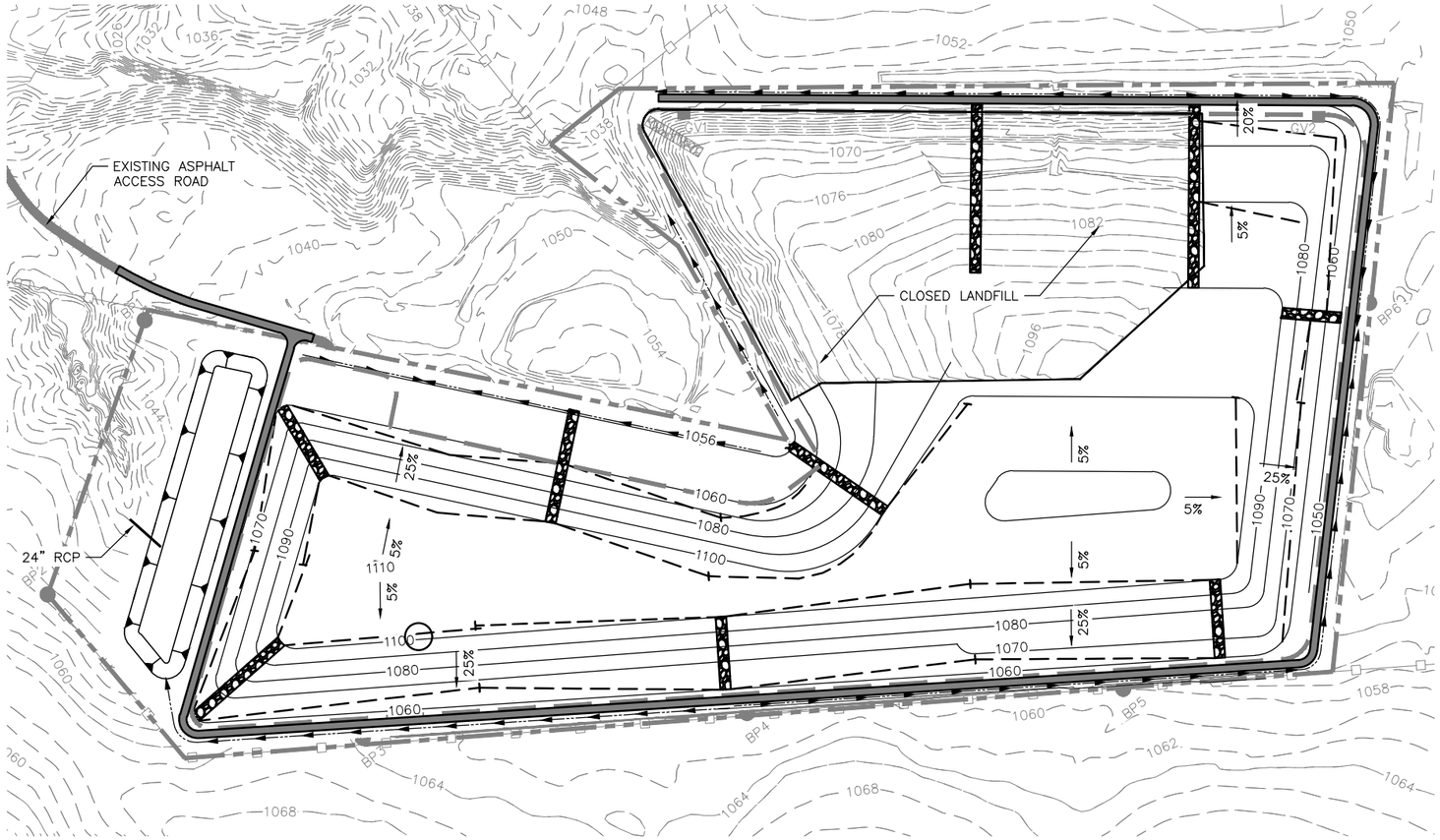
CELL 6 EXCAVATION PLAN

Date:	OCTOBER 2020
Designed:	T. METAERIA
Drawn:	J. TORRES
Reviewed:	B. HINDMAN, P.E.
CP&Y Proj. No.	DELR1900546

FIGURE

A.1b

REFERENCES: DELR1900546_ECBASE.dwg DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_ECBASE_LF AREA COMPOSITE Sep 14, 2021 - 1:22pm \\dalfile01.cpyone.com\Redirects\bbaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIA-A.1b.dwg LAYOUT: Layout1 USER:



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SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- CLOSED CELL BOUNDARY
- LIMIT OF WASTE
- 1090 FINAL COVER CONTOURS
- 1084 EXISTING CONTOURS
- SWALES
- PERIMETER CHANNEL
- CHUTES
- BP1 GAS PROBE
- EXISTING SITE FENCE
- PROPOSED ACCESS ROAD
- CUT/FILL MARKERS
- EXISTING CHUTE
- GV2 GAS VENT

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1–5 & D TOPO WAS UPDATED SEPTEMBER, 2018 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON–GOING LANDFILL ACTIVITIES.
2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774–0796. DATED: 10–25–94.
3. REFER TO APPENDIX IIIH–SURFACE WATER DRAINAGE PLAN FOR DRAINAGE DESIGN INFORMATION.
4. MAXIMUM FINAL COVER ELEVATION IS 1113 FT–MSL. MAXIMUM TOP OF WASTE ELEVATION IS 1110.5 FT–MSL.
5. TYPICAL SIDESLOPES FOR THE PROPOSED VERTICAL EXPANSION AREA ARE 4H:1V. TYPICAL TOPSLOPE IS 5%.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2020

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	05/2021
2.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
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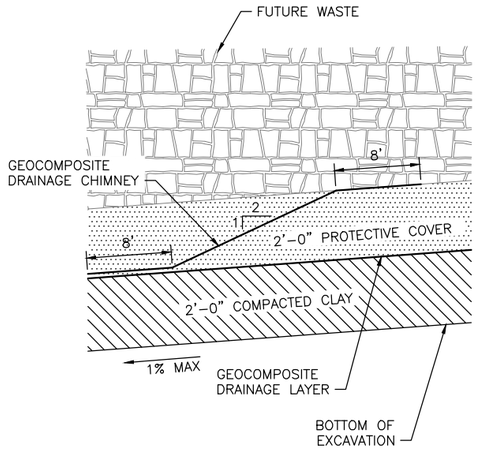
CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT
COMPLETION PLAN

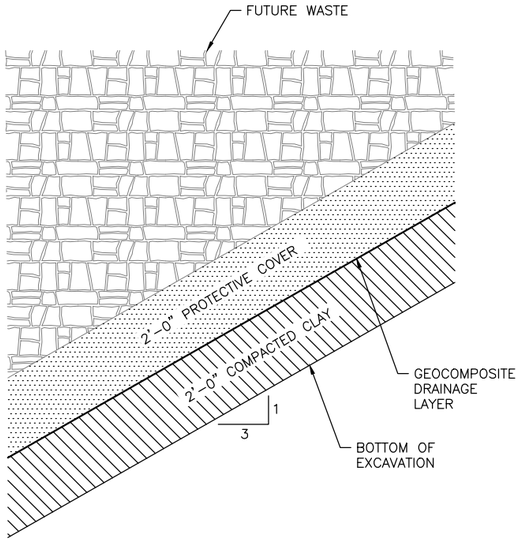
Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
A.2

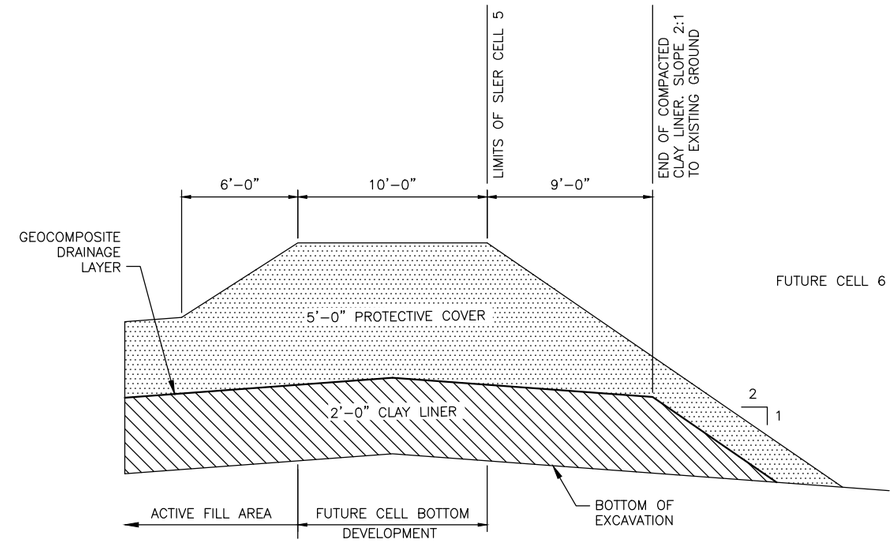
REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_ECBASE_LF AREA COMPOSITE
Sep 14, 2021 – 1:20pm \\dalfile01.cpyone.com\Redirects\tbloine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIA-A.2.dwg LAYOUT: Layout1 USER:



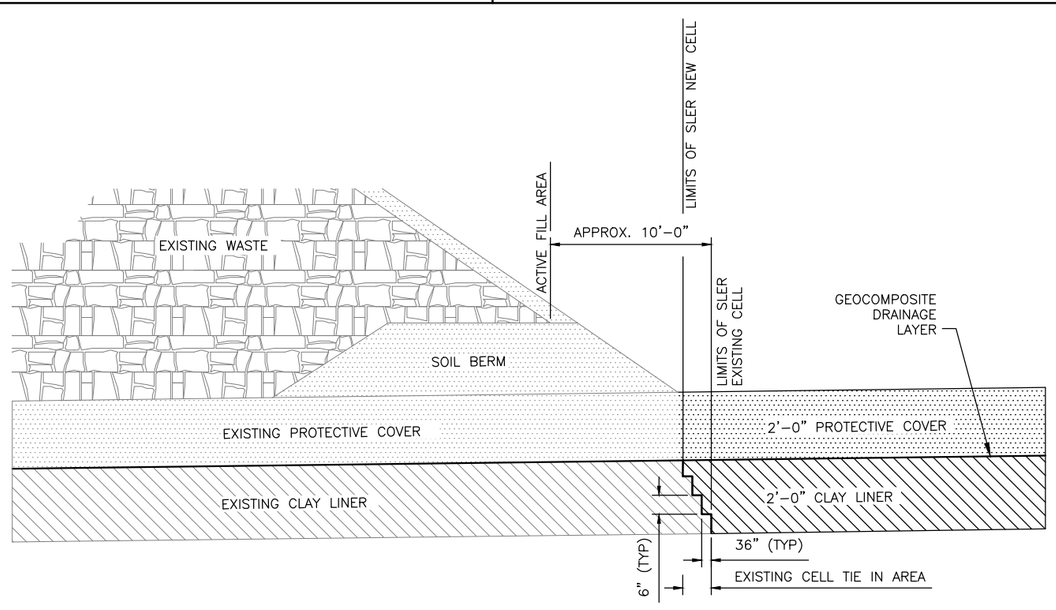
A GEOCOMPOSITE DRAINAGE CHIMNEY
NTS



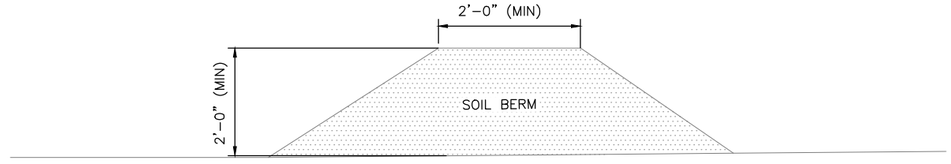
B SIDESLOPE LINER
NTS



C LINER TERMINATION



D EXISTING LINER TERMINATION



E CONTAINMENT BERM

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CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF DEL RIO TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

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0 1"

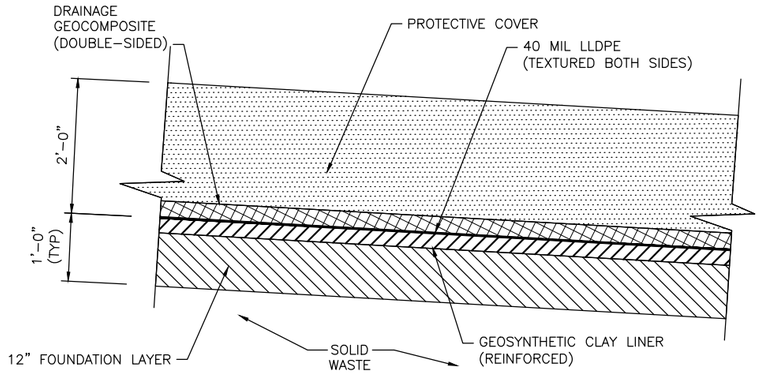
CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

LINER SYSTEM DETAILS II

Date:	OCTOBER 2020
Designed:	T. METAFERIA
Drawn:	T. METAFERIA
Reviewed:	B. HINDMAN
CP&Y Proj. No.	DELR1900546

FIGURE
A.4

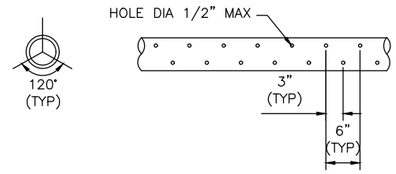
REFERENCES: DELR1900546 Border Base Permit.dwg _Std ENVIRO SEALS.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_CIVIL_DETAILS
Sep 14, 2021 – 12:29pm C:\pwworking\cpy\pw_cpy\tmetaferia\d0774898\DELR1900546 Figure IIIA-A.4.dwg LAYOUT: Layout1 USER:



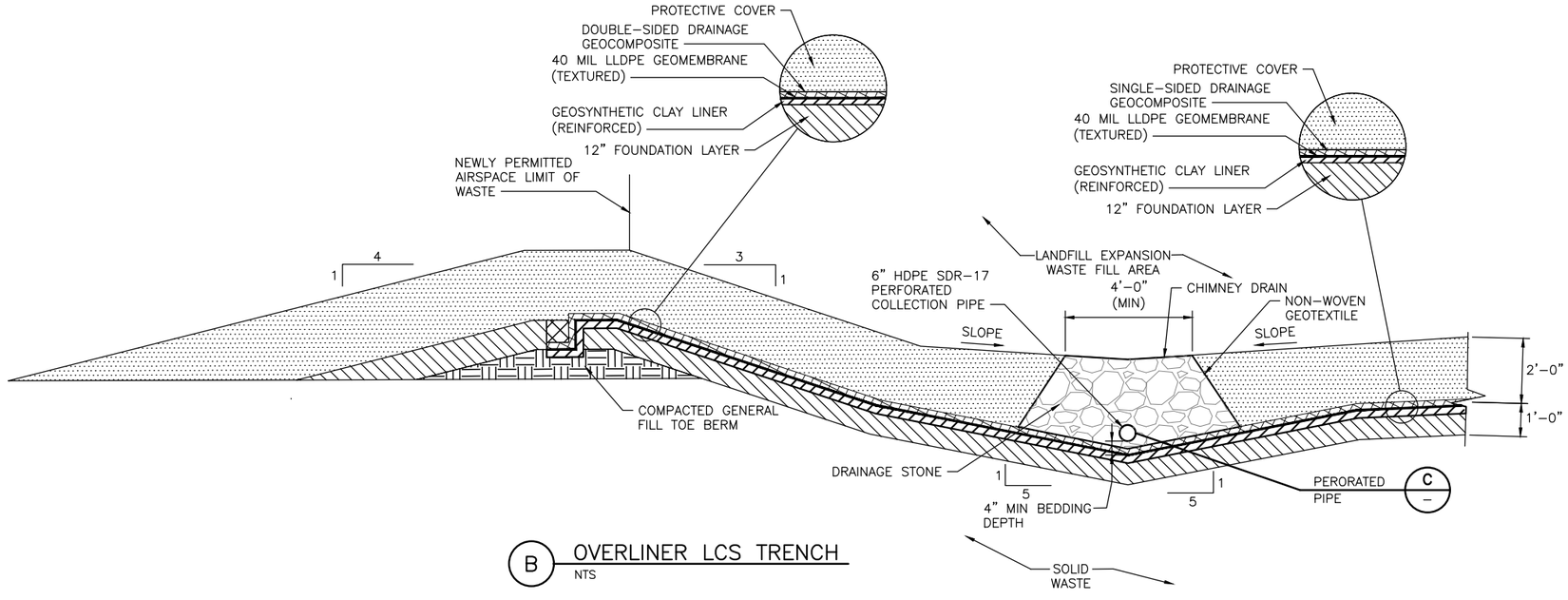
A OVERLINER SYSTEM
NTS

NOTES:

1. FOUNDATION LAYER PREPARATION, INSTALLATION OF GEOSYNTHETIC CLAY LINER, AND PLACEMENT OF PROTECTIVE COVER WILL BE IN ACCORDANCE WITH APPENDIX IIID–LQCP.
2. DRAINAGE GEOCOMPOSITE FOR OVERLINER AREAS CONSISTS OF A 300–MIL GEONET WITH 6 OZ/SY GEOTEXTILES HEAT BONDED ON BOTH SIDES.
3. THE DETAIL IS SHOWN WITH INITIAL CONDITION SLOPES. THE SETTLEMENT ANALYSIS THAT INCLUDES THE DETERMINATION OF AFTER SETTLEMENT SLOPES FOR THE LEACHATE COLLECTION LAYER AS WELL AS FOR THE LEACHATE COLLECTION PUPING IS INCLUDED IN APPENDIX IIIE (APPENDIX IIIE–B). ALSO A DEMONSTRATION SHOWING THAT THE LEACHATE COLLECTION SYSTEM WILL FUNCTION AS DESIGNED IS INCLUDED IN APPENDIX IIIC.



C PERFORATED PIPE
NTS



B OVERLINER LCS TRENCH
NTS

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REFERENCES: DELR1900546 Border Base Permit.dwg _Std ENVIRO SEALS.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_CIVIL_DETAILS
Jun 14, 2021 – 1:32pm C:\pwworking\cpy\pw_cpy\tmetaferia\d0774898\DELR1900546 Figure IIIA-A.8.dwg LAYOUT: Layout1 USER:

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CITY OF Del Rio TEXAS

STATE OF TEXAS TEMOBISTA METAFERIA 123183 LICENSED PROFESSIONAL ENGINEER 09/07/2021

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CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT
OVERLINER DETAILS

Date: OCTOBER 2020
Designed: T. METAFERIA
Drawn: J. TORRES
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE
A.8

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIA-B
LANDFILL UNIT CROSS SECTIONS

Prepared for

City of Del Rio

October 2020

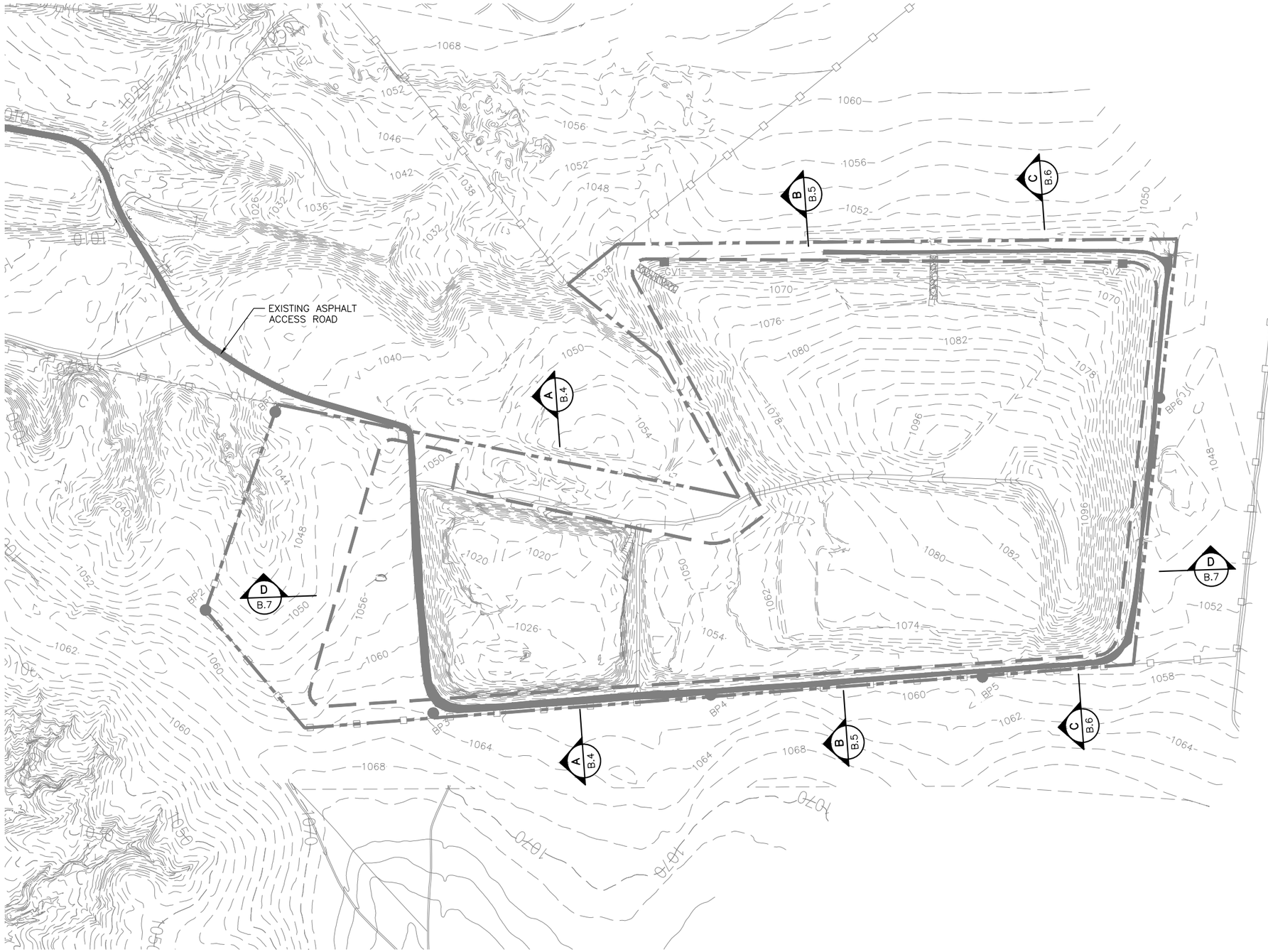
Revision 1 May 2021
Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

TABLE OF CONTENTS



LEGEND

- PERMIT BOUNDARY
- 1084 EXISTING CONTOURS
- LIMITS OF WASTE
- BP1 GAS PROBE
- GV2 GAS VENT
- EXISTING SITE FENCE

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1–5 & D TOPO WAS UPDATED SEPTEMBER, 2018 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON–GOING LANDFILL ACTIVITIES.
2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774–0796. DATED: 10–25–94.

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CP&Y, INC.
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CITY OF Del Rio TEXAS

STATE OF TEXAS · TEMBOSIA METAFERIA · 123183 · LICENSED PROFESSIONAL ENGINEER · 09/07/2021

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1" 0

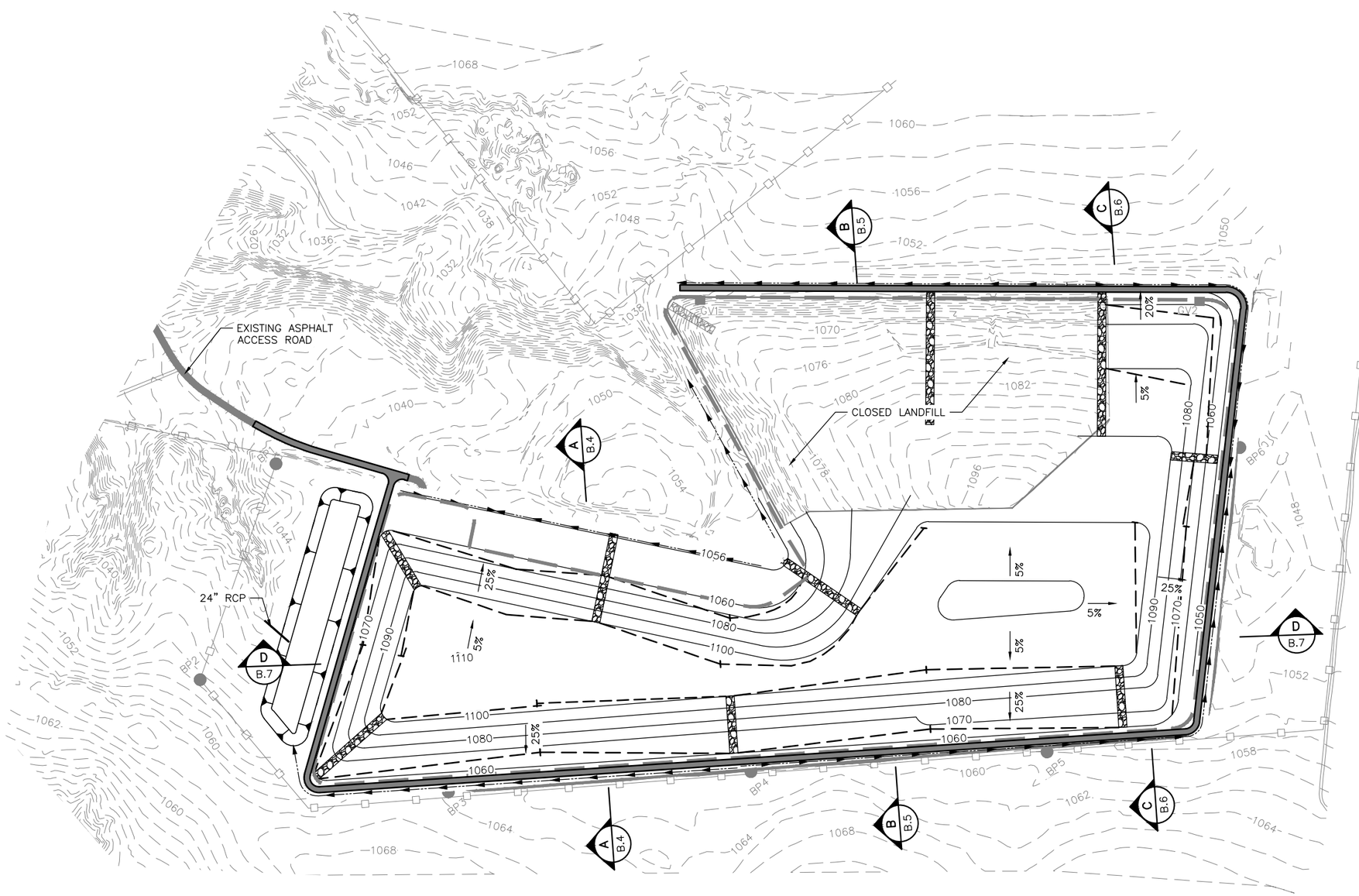
CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

TYPICAL SECTION SITE PLAN

Date: OCTOBER 2020
Designed: T. METAFERIA
Drawn: T. BENSON
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE
B.1

REFERENCES: DELR1900546 Border Base Permit.dwg _Std ENVIRO SEALS.dwg DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_ECBASE_LF AREA COMPOSITE Sep 14, 2021 - 1:14pm \\dalfile01.cpyone.com\Redirects\tblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1700632_ECBASE.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1700632_ECBASE.dwg DELR1900546 Figure IIIA-B.1.dwg LAYOUT: Layout1 USER:



0 200 400
SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- CLOSED CELL BOUNDARY
- LIMIT OF WASTE
- 1090 FINAL COVER CONTOURS
- 1084 EXISTING CONTOURS
- SWALES
- PERIMETER CHANNEL
- CHUTES
- BP1 GAS PROBE
- EXISTING SITE FENCE
- PROPOSED ACCESS ROAD
- CUT/FILL MARKERS
- EXISTING CHUTE
- GV2 GAS VENT

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1–5 & D TOPO WAS UPDATED SEPTEMBER, 2018 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON–GOING LANDFILL ACTIVITIES.
2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774–0796. DATED: 10–25–94.

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CP&Y, INC.
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CITY OF Del Rio TEXAS

STATE OF TEXAS
TEMOBISTA METAFERIA
123183
LICENSED
PROFESSIONAL ENGINEER
09/07/2021

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CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

LANDFILL COMPLETION PLAN

Date: OCTOBER 2020
Designed: T. METAFERIA
Drawn: T. BENSON
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE
B.3

REFERENCES: DELR1900546 Border Base Permit.dwg _Std ENVIRO SEALS.dwg DELR1900546_ECBASE_LF AREA COMPOSITE.dwg DELR1900546_POBASE
Sep 14, 2021 – 1:13pm \\dalfile01.cpyone.com\Redirects\fbloine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIA–B.3.dwg LAYOUT: Layout1 USER:
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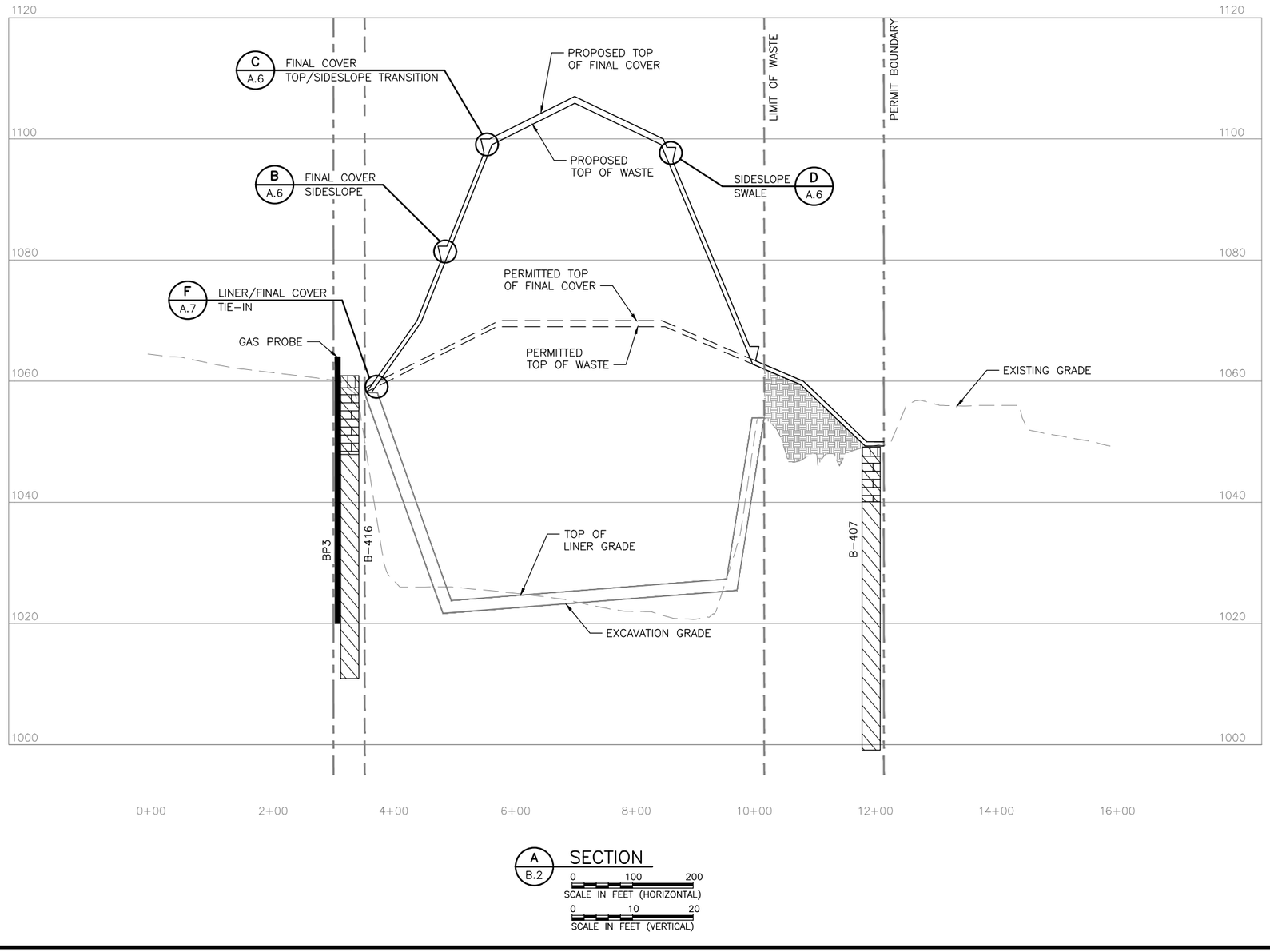
NOTES:

1. TOPOGRAPHIC MAP WAS COMPLETED FROM PHOTOGRAMMETRIC METHODS BY DALLAS AERIAL SURVEY. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS.
2. REFER TO APPENDIX IIIA–A FOR LINER, LEACHATE COLLECTION, AND FINAL COVER SYSTEM DETAILS.
3. SEE APPENDIX IIIG FOR BORING DATA. BORINGS PROJECTED INTO THE LINE OF SECTION.
4. AS SHOWN IN APPENDIX I/IIC, THE BUFFER ZONES VARY AROUND THE PERIMETER OF THE SITE, BUT IN NO CASE ARE THEY LESS THAN 50–FEET FOR EXISTING WASTE.
5. REFER TO APPENDIX IIIM, FOR DETAILS OF THE LANDFILL GAS MANAGEMENT PLAN.
6. DRAINAGE DESIGN INFORMATION IS PROVIDED IN APPENDIX IIIH–SURFACE WATER DRAINAGE PLAN.
7. MAXIMUM TOP OF FINAL COVER ELEVATION IS 1113 FT–MSL.
8. REFER TO APPENDIX IIIC FOR LEACHATE COLLECTION SYSTEM (LCS) INFORMATION.
9. THE SITE DOES NOT HAVE ANY GROUNDWATER MONITORING WELLS. GROUNDWATER HAS NOT BEEN ENCOUNTERED IN OF THE BORINGS OR DURING CONSTRUCTION OF CELLS 1 THROUGH 5.
10. THIS SITE DOES NOT ACCEPT ANY CLASS 1 WASTE.



A B.2 SECTION

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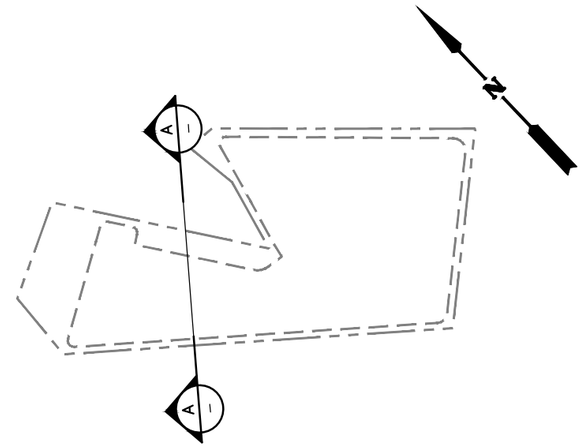
SCALE IN FEET (HORIZONTAL)
0 10 20
SCALE IN FEET (VERTICAL)



KEY MAP
NTS

LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- CLAY
- CLAY AND CALICHE
- SILTY CLAY

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CITY OF Del Rio TEXAS

STATE OF TEXAS TEMOBISTA METAFERIA 123183 LICENSED PROFESSIONAL ENGINEER 09/07/2020

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CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

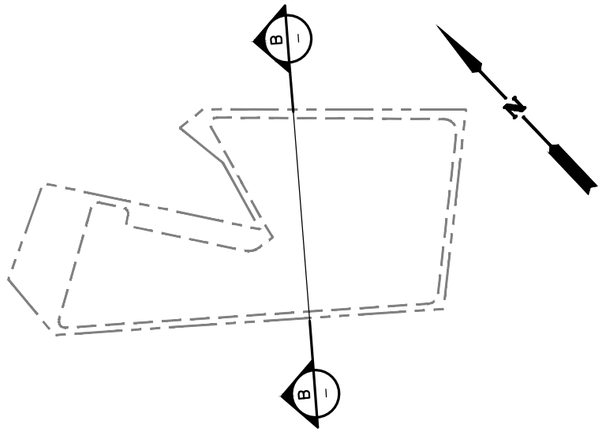
CROSS SECTION A

Date: OCTOBER 2020
Designed: T. METAFERIA
Drawn: J. TORRES
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE
B.4

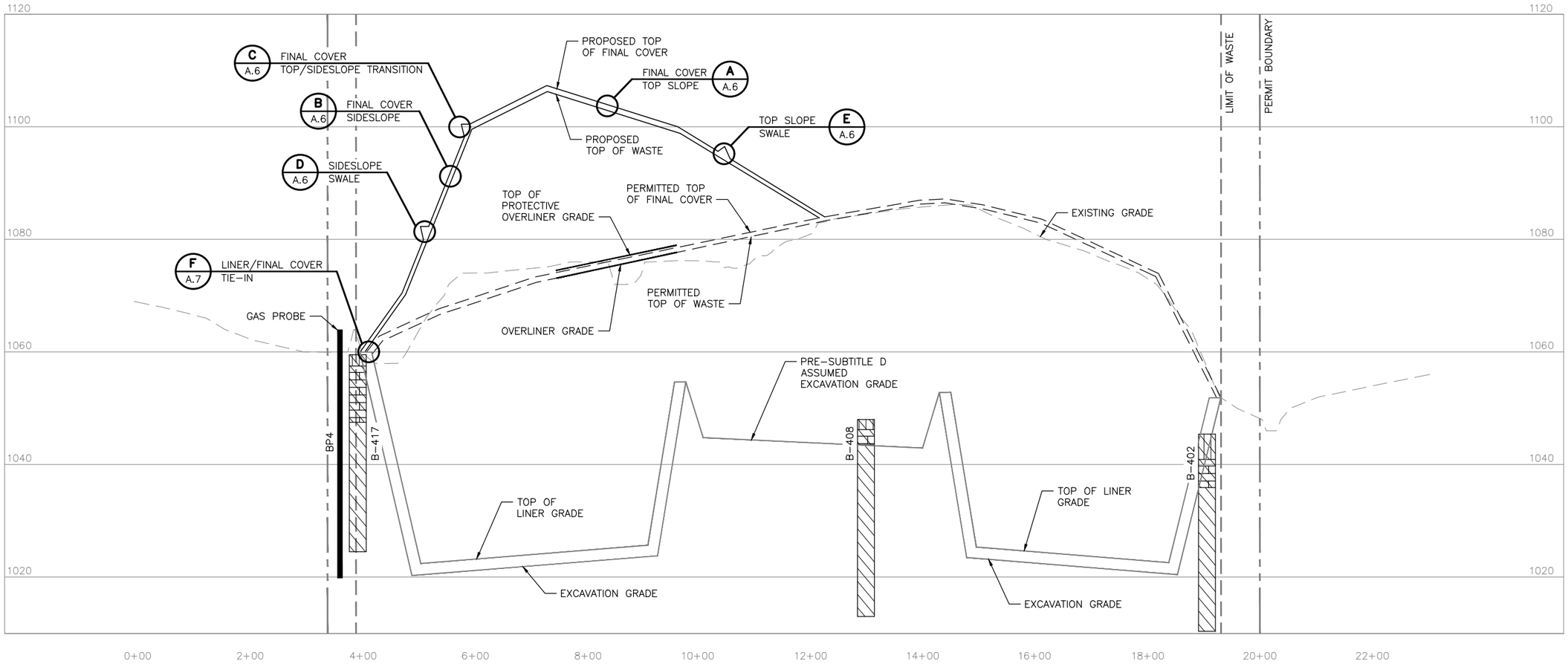
NOTES:

1. TOPOGRAPHIC MAP WAS COMPLETED FROM PHOTOGRAMMETRIC METHODS BY DALLAS AERIAL SURVEY. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS.
2. REFER TO APPENDIX IIIA–A FOR LINER, LEACHATE COLLECTION, AND FINAL COVER SYSTEM DETAILS.
3. SEE APPENDIX IIIG FOR BORING DATA. BORINGS PROJECTED INTO THE LINE OF SECTION.
4. AS SHOWN IN APPENDIX I/IIC, THE BUFFER ZONES VARY AROUND THE PERIMETER OF THE SITE, BUT IN NO CASE ARE THEY LESS THAN 50–FEET FOR EXISTING WASTE.
5. REFER TO APPENDIX IIIM, FOR DETAILS OF THE LANDFILL GAS MANAGEMENT PLAN.
6. DRAINAGE DESIGN INFORMATION IS PROVIDED IN APPENDIX IIIH–SURFACE WATER DRAINAGE PLAN.
7. MAXIMUM TOP OF FINAL COVER ELEVATION IS 1113 FT–MSL.
8. REFER TO APPENDIX IIIC FOR LEACHATE COLLECTION SYSTEM (LCS) INFORMATION.
9. THE SITE DOES NOT HAVE ANY GROUNDWATER MONITORING WELLS. GROUNDWATER HAS NOT BEEN ENCOUNTERED IN OF THE BORINGS OR DURING CONSTRUCTION OF CELLS 1 THROUGH 5.
10. THIS SITE DOES NOT ACCEPT ANY CLASS 1 WASTE.



KEY MAP
NTS

LEGEND
- PERMIT BOUNDARY
- LIMIT OF WASTE
- CLAY
- CLAY AND CALICHE
- SILTY CLAY



B B.2 SECTION

0 100 200
SCALE IN FEET (HORIZONTAL)
0 10 20
SCALE IN FEET (VERTICAL)

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CITY OF DEL RIO TEXAS

STATE OF TEXAS TEMOBISTA METAFERIA 123183 LICENSED PROFESSIONAL ENGINEER 09/07/2021

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CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT
CROSS SECTION B

Date: OCTOBER 2020
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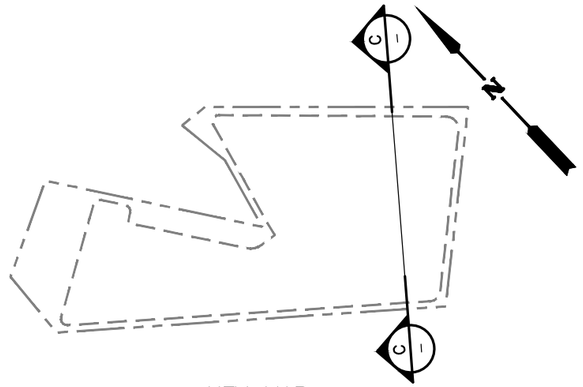
Drawn: J. TORRES
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE
B.5

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_ECBASE_LF AREA COMPOSITE Sep 14, 2021 - 12:59pm \\dalfile01.cpyone.com\Redirects\bblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIA-B.5.dwg LAYOUT: Layout1 USER: DELR1900546_Std ENVIRO SEALS.dwg

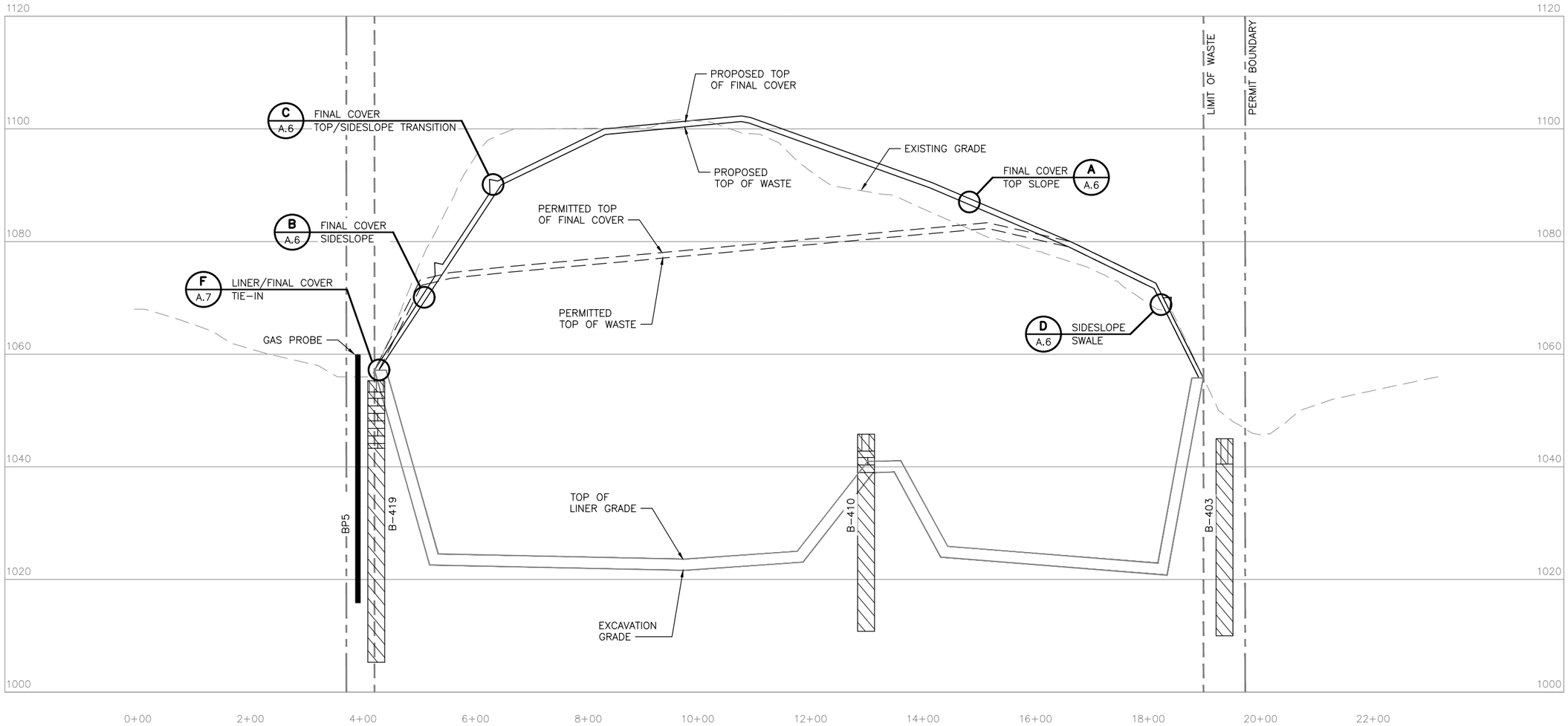
NOTES:

1. TOPOGRAPHIC MAP WAS COMPLETED FROM PHOTOGRAMMETRIC METHODS BY DALLAS AERIAL SURVEY. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS.
2. REFER TO APPENDIX IIIA–A FOR LINER, LEACHATE COLLECTION, AND FINAL COVER SYSTEM DETAILS.
3. SEE APPENDIX IIIL FOR BORING DATA. BORINGS PROJECTED INTO THE LINE OF SECTION.
4. AS SHOWN IN APPENDIX I/IIC, THE BUFFER ZONES VARY AROUND THE PERIMETER OF THE SITE, BUT IN NO CASE ARE THEY LESS THAN 50–FEET FOR EXISTING WASTE.
5. REFER TO APPENDIX IIIM, FOR DETAILS OF THE LANDFILL GAS MANAGEMENT PLAN.
6. DRAINAGE DESIGN INFORMATION IS PROVIDED IN APPENDIX IIIH–SURFACE WATER DRAINAGE PLAN.
7. MAXIMUM TOP OF FINAL COVER ELEVATION IS 1113 FT–MSL.
8. REFER TO APPENDIX IIIC FOR LEACHATE COLLECTION SYSTEM (LCS) INFORMATION.
9. THE SITE DOES NOT HAVE ANY GROUNDWATER MONITORING WELLS. GROUNDWATER HAS NOT BEEN ENCOUNTERED IN OF THE BORINGS OR DURING CONSTRUCTION OF CELLS 1 THROUGH 5.
10. THIS SITE DOES NOT ACCEPT ANY CLASS 1 WASTE.



KEY MAP
NTS

LEGEND
- PERMIT BOUNDARY
- LIMIT OF WASTE
- CLAY
- CLAY AND CALICHE
- SILTY CLAY



C B.2 SECTION

0 100 200
SCALE IN FEET (HORIZONTAL)
0 10 20
SCALE IN FEET (VERTICAL)

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CP&Y, INC.
ENGINEERING FIRM REGISTERED F-1741

CITY OF DEL RIO TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 LICENSED PROFESSIONAL ENGINEER — 09/07/2021

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0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

CROSS SECTION C

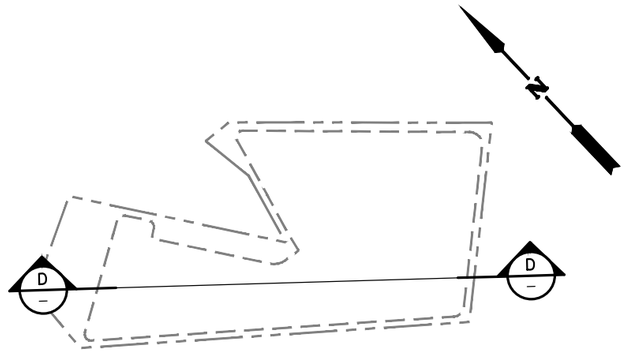
Date: OCTOBER 2020
Designed: T. METAFERIA
Drawn: J. TORRES
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE
B.6

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_ECBASE_LF AREA COMPOSITE Sep 14, 2021 – 12:54pm \\dalfile01.cpyone.com\Redirects\tblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIA–B.6.dwg LAYOUT: Layout1 USER:

NOTES:

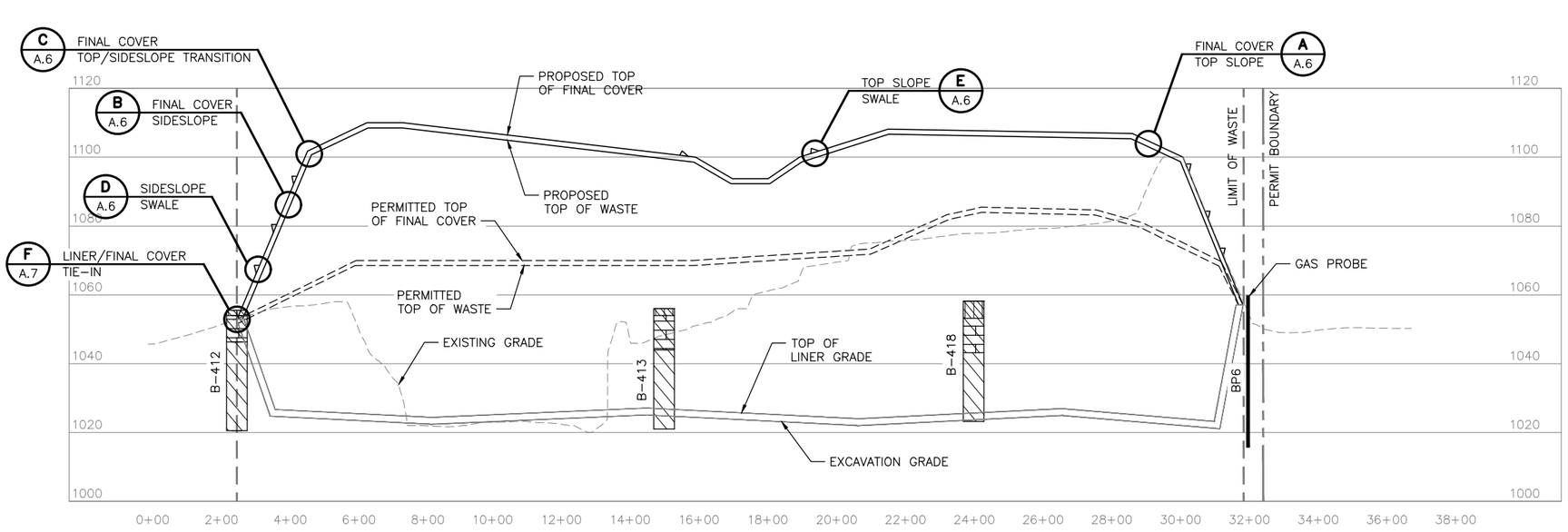
1. TOPOGRAPHIC MAP WAS COMPLETED FROM PHOTOGRAMMETRIC METHODS BY DALLAS AERIAL SURVEY. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP ACCURACY STANDARDS.
2. REFER TO APPENDIX IIIA–A FOR LINER, LEACHATE COLLECTION, AND FINAL COVER SYSTEM DETAILS.
3. SEE APPENDIX IIIL FOR BORING DATA. BORINGS PROJECTED INTO THE LINE OF SECTION.
4. AS SHOWN IN APPENDIX I/IIC, THE BUFFER ZONES VARY AROUND THE PERIMETER OF THE SITE, BUT IN NO CASE ARE THEY LESS THAN 50–FEET FOR EXISTING WASTE.
5. REFER TO APPENDIX IIIM, FOR DETAILS OF THE LANDFILL GAS MANAGEMENT PLAN.
6. DRAINAGE DESIGN INFORMATION IS PROVIDED IN APPENDIX IIIH–SURFACE WATER DRAINAGE PLAN.
7. MAXIMUM TOP OF FINAL COVER ELEVATION IS 1113 FT–MSL.
8. REFER TO APPENDIX IIIC FOR LEACHATE COLLECTION SYSTEM (LCS) INFORMATION.
9. THE SITE DOES NOT HAVE ANY GROUNDWATER MONITORING WELLS. GROUNDWATER HAS NOT BEEN ENCOUNTERED IN OF THE BORINGS OR DURING CONSTRUCTION OF CELLS 1 THROUGH 5.
10. THIS SITE DOES NOT ACCEPT ANY CLASS 1 WASTE.



KEY MAP
NTS

LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- CLAY
- CLAY AND CALICHE
- SILTY CLAY



D B.2 SECTION

SCALE IN FEET (HORIZONTAL): 0 200 400
SCALE IN FEET (VERTICAL): 0 20 40

FOR PERMITTING PURPOSES ONLY

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_PCBASE.dwg DELR1900546_ECBASE.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_ECBASE_LF AREA COMPOSITE
Sep 14, 2021 – 12:45pm \\dalfile01.copyone.com\Redirects\tblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIA–B.7.dwg LAYOUT: Layout1 USER:

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F–1741

CITY OF Del Rio TEXAS

STATE OF TEXAS TEMOBISTA METAFERIA 123183 LICENSED PROFESSIONAL ENGINEER 09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	05/2021
2.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT
CROSS SECTION D

Date: OCTOBER 2020
Designed: T. METAFERIA
Drawn: J. TORRES
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE
B.7

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIB
SITE LIFE CALCULATIONS

Prepared for

City of Del Rio

October 2020

Revision 1, May 2021

Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

TABLE OF CONTENTS

1 SITE LIFE

1.1 Solid Waste Generation

Two estimates have been developed provided an assessment of the solid waste generation rate for the Del Rio Landfill. The estimate included in Section 1.1.1 is based on the City's knowledge of the current market condition and population. The estimated included in Section 1.1.2 is based on historical waste inflow data. The projection based on historical data is provided for informational purposes and is not considered in any calculation or demonstration in this application

It is important to note that the estimates included in both sections are based on numerous assumptions and may vary as market conditions change.

1.1.1 Solid Waste Generation Information Using Population Projections

Over the last few years, the waste inflow rate at Del Rio Landfill has varied from 136 tons per day to 175 tons per day as listed below.

Fiscal Year	Actual Waste Inflow	Typical Daily Waste Inflow Rate Based on a 309-Day Operating Schedule
2016	54,092 tons per year	175 tons per day
2017	51,764 tons per year	168 tons per day
2018	42,072 tons per year	136 tons per day
2019	45,399 tons per year	147 tons per day

[1] Information obtained from the TCEQ MSW Annual Reports.

After 2019, the waste inflow rate is assumed to increase consistent with the projected population growth rate for the facility's general service area which for this analysis is assumed to be the City of Del Rio and Val Verde county.

Using this methodology, the expected maximum annual waste acceptance rate is 56,509 tons in 2041 (183 tons per day based on a 309-day operating schedule). The above projections are based on current population growth projects and may vary as conditions change. Over the life of the facility, the expected average daily volume of incoming waste is projected to be approximately 160 tons per day (49,572 tons per year based on a 309-day operating schedule).

Site life calculations based on the population growth projections are shown on pages IIIB-4 through IIIB-5.

1.1.2 Solid Waste Generation Information Using Historical Data

This estimate is based on historical waste inflow data. For example, in 2019 Del Rio Landfill reported in the Texas Commission on Environmental Quality (TCEQ) Municipal Solid Waste (MSW) Annual Report that the site accepted 45,399 tons per year or 147 tons per day based on a 309-day operating schedule. As noted on page IIIB-6 this value was then increased using trendline equation based on the historical data.

The waste inflow rate is assumed to increase with the trendline as shown on the graph on page IIIB-6. Using this methodology, the expected maximum annual waste acceptance rate is 51,543 tons in 2042 (167 tons per day based on a 309-day operating schedule). Over the life of the facility, the expected average daily volume of incoming waste is projected to be approximately 160 tons per day (49,445 tons per year based on a 309-day operating schedule).

Supplementary calculations are included on pages IIIB-6 through IIIB-7.

2 POPULATION EQUIVALENT

2.1 Del Rio Landfill Population Projections

Using the average waste inflow rate of 51,145 tons per year discussed in Section 1.1.1 (an average daily volume of 166 tons per day based on a 309-day operating schedule) and assuming 5 pounds of waste is generated per capita per day, the population equivalent is:

$$\frac{(49{,}572\ \ tons\ per\ year)x\ (2{,}000\frac{pounds}{ton})}{(5\ pounds\ per\ person/day)x\left(365\frac{days}{year}\right)} = 54{,}325\ persons$$

2.2 Historical Data

Using the average of the actual waste inflow rate of 49,178 tons per year discussed in Section 1.1.2 (an average daily volume of 159 tons per day based on a 309-day operating schedule) and assuming 5 pounds of waste is generated per capita per day, the population equivalent is:

$$\frac{(49{,}445\ tons\ per\ year)x\ (2{,}000\frac{pounds}{ton})}{(5\ pounds\ per\ person/day)x\left(365\frac{days}{year}\right)} = 54{,}186\ persons$$

3 LANDFILL CAPACITY

The estimated total capacity of in-place waste and daily cover over the active life of the facility is approximately 29.377 million cubic yards. The total volume available for solid waste and daily cover after January 21, 2020 (date of topographic information) is estimated to be 1,820,721 cubic yards. This airspace estimate includes the remaining available volume in the existing permitted area and the proposed vertical expansion.

4 SITE LIFE CALCULATIONS

The site life calculations are based off of projected population growth rates in Val Verde County. These calculations are presented on pages IIIB-4 through IIIB-5. In summary, the site life is projected to be approximately 21.4 years, which would result in the site's closure during the year 2042.

The site life calculations using historical data are presented on pages IIIB-6 through IIIB-7. For this case, the site life is projected to be approximately 22.1 years, which would result in the site's closure during the year 2043.

Average Density for Site Life Calculations

Client: City of Del Rio
Project: Major Permit Amendment
Description: Site Life Calculations

Date: 10/16/2020
Job No: DELR1900546
By: T. Metaferia
Checked By: B. Hindman

Purpose - **Determine average density for the landfill between the permitted bottom of waste contours and proposed top of waste contours.**

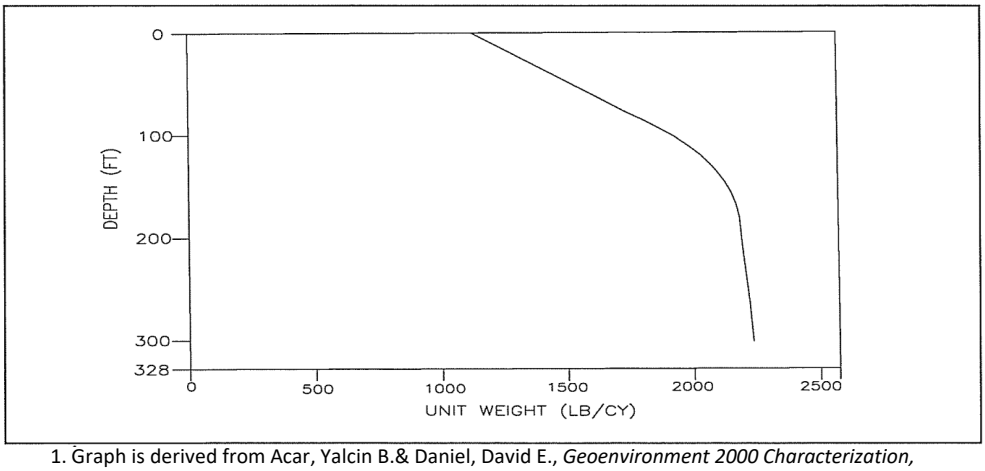
Step 1 - Determine average thickness of waste throughout the landfill profile.:

Using the permitted excavation plan and proposed final cover plan in Appendix IIIA-A, it was determined that the average thickness of was over the entire site is 60 feet

The average density is calculated from the midpoint of the average depth (30 feet) to determine the average density.

Step 2 Determine the average density of the fill using the Unit Weight Profile for MSW graph shown below. The density estimate is obtained using the midpoint of the average depth.

Unit Weight Profiles for Waste/Daily Cover Within a MAW Landfill [1]



1. Graph is derived from Acar, Yalcin B.& Daniel, David E., *Geoenvironment 2000 Characterization, Containment, Remediation, and Performance in Environmental Geotechnics,* Volume 2, American Society of Civil Engineers, 1995.

Midpoint of Average Depth = 51 ft (Refer to Figure IIIB.1)

The average density is calculated at the midpoint of the average depth of (30 feet) to represent the average density of waste/cover soil within the landfill.

D_{avg} = 1,500 lb/yd^3

Site Life Calculations

Client: City of Del Rio
Project: Major Permit Amendment
Description: Site Life Calculations

Date: 10/16/2020
Job No: DELR1900546
By: T. Metaferia
Checked By: B. Hindman

Purpose - **Determine approximate site life in years for the site using waste inflow projections based on population growth. The site typically operates 309 days per year.**

Step 1 - Determine the annual waste inflow rate and project waste inflow rate:

City of Del Rio

Growth Rate(2011-2020) =	2.86%	Annualized growth rate =	0.28%
Growth Rate(2021-2030) =	6.41%	Annualized growth rate =	0.62%

Val Verde County

Growth Rate(2011-2020) =	6.59%	Annualized growth rate =	0.64%
Growth Rate(2021-2030) =	10.41%	Annualized growth rate =	1.00%

Val Verde County growth rates were used as they are higher growth rates than Del Rio

Initial Waste Inflow 2019 (tons/yr) = 45399

Use 2019 value and predicted Annualized growth rate for 2011-2030 to calculate Waste inflow. Assume inflow corresponds to population growth.

Initial Waste Inflow 309 day operation (tons/day)= 147

Step 2 - Determine available landfill tonnage

Permitted remaining airspace =	473,643	cy	
Expansion airspace =	1,347,078	cy	cy
Remaining airspace (permitted and expansion) =	1,820,721	cy	cy
Percent daily cover =	10	%	
In-place density (waste and soil) *=	1500	lb/cy	

* Refer to page IIIB-3 for additional information regarding the average in-place density of waste

γ_{soil} = 2,430 lb/cy

- Estimate density of waste only

(γ_{soil})(10% of 1,347,078 cy)+(γ_{waste})(90% of 1,347,078 cy) = $(\gamma_{soil/waste})$(1,347,078 cy)

γ_{waste} = 1396.7 lb/cy

Remaining permitted available airspace = (90%)(1,820,721 cy)*(1396.7 lb/cy)(1/2000 tons/lb)
= 1,144,323 tons

Step 3 - Waste Stream Growth

Fiscal Year	Waste Inflow (tons)	Tonnage Consumed (tons)
2019	45399	-
2020	45853	45853
2021	46312	92165
2022	46775	138939
2023	47242	186182
2024	47715	233896
2025	48192	282088
2026	48674	330762
2027	49161	379923
2028	49652	429575
2029	50149	479724
2030	50650	530374
2031	51157	581531
2032	51668	633199
2033	52185	685384
2034	52707	738091
2035	53234	791325
2036	53766	845091
2037	54304	899395
2038	54847	954242
2039	55395	1009637
2040	55949	1065587
2041	56509	1122095
2042	22228	1144323

Available tonnage is consumed during year 2042

Site Life = 21.4 yrs

Step 4 - Maximum and Average Inflow

Tonnage accepted during final year of operation (56,509 tons) /309 days of operation per year

Maximum inflow = 183 tons/day

Average Tonnage accepted throughout the site life (49,572 tons) /309 days of operation per year

Average inflow = 160 tons/day

Site Life Calculations

Client: City of Del Rio
Project: Major Permit Amendment
Description: Site Life Calculations

Date: 10/16/2020
Job No: DELR1900546
By: T. Metaferia
Checked By: B. Hindman

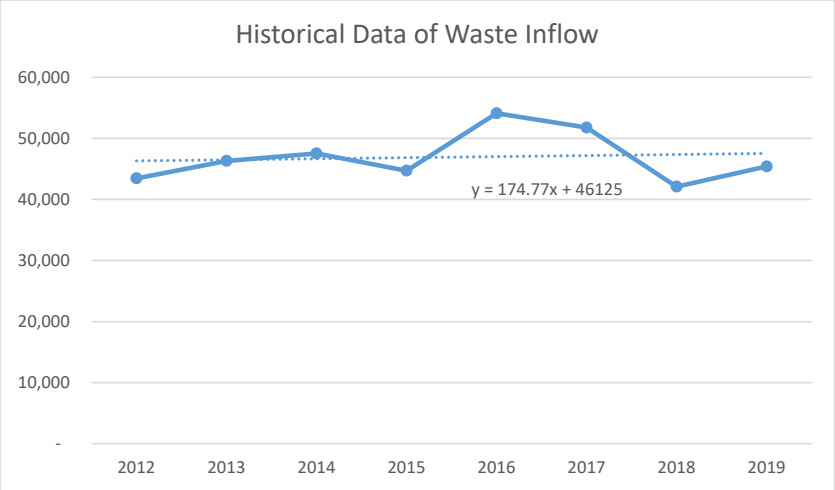
Purpose - **Determine approximate site life in years for the site based on historical data obtained from the TCEQ Annual reports. The site typically operates 309 days per year.**

Step 1 - Determine the annual waste inflow rate and project waste inflow rate:

Fiscal Year	Actual Waste Inflow (tons/yr)	Daily Waste Inflow- 309-day operation (tons/day)
2012	43,446	141
2013	46,295	150
2014	47,516	154
2015	44,708	145
2016	54,092	175
2017	51,763	168
2018	42,072	136
2019	45,399	147

Average Waste Inflow (tons/yr) = 46911

Avg. Waste Inflow 309 day operation (tons/day)= 152



*Due to the fluctuation of waste inflow, a trendline was develop based on historical data to project the waste acceptance at the facility.

Step 2 - Determine available landfill tonnage:

Permitted remaining airspace = 473,643
Expansion airspace = 1,347,078
Remaining airspace (permitted and expansion) = 1,820,721 cy
Percent daily cover = 10 %
In-place density (waste and soil) = 1500 lb/cy
γ_{soil} = 2,430 lb/cy

$(\gamma_{soil})(10\% \text{ of } 1{,}347{,}078 \text{ cy})+(\gamma_{waste})(90\% \text{ of } 1{,}347{,}078 \text{ cy}) = (\gamma_{soil/waste})(1{,}347{,}078 \text{ cy})$

γ_{waste} = 1396.7 lb/cy

Remaining available airspace = (90%)(1,820,721 cy)*(657.8 lb/cy)(1/2000 tons/lb)
= 1,144,323 tons

Step 3 - Waste Stream Growth

Trendline base years*	Fiscal Year	Waste Inflow (tons)**	Tonnage Consumed (tons)
8	2019	45399	-
9	2020	47698	47698
10	2021	47873	95571
11	2022	48047	143618
12	2023	48222	191840
13	2024	48397	240237
14	2025	48572	288809
15	2026	48747	337556
16	2027	48921	386477
17	2028	49096	435573
18	2029	49271	484844
19	2030	49446	534290
20	2031	49620	583910
21	2032	49795	633705
22	2033	49970	683675
23	2034	50145	733820
24	2035	50319	784139
25	2036	50494	834634
26	2037	50669	885303
27	2038	50844	936146
28	2039	51019	987165
29	2040	51193	1038358
30	2041	51368	1089726
31	2042	51543	1141269
32	2043	3054	1144323

*The trendline base years start with 2012 as year 1

**The waste inflow was calculated using the trendline base years and the trendline equation.

Available tonnage is consumed during year 2044

Site Life = 22.1 yrs.

Step 4 - Maximum and Average Inflow

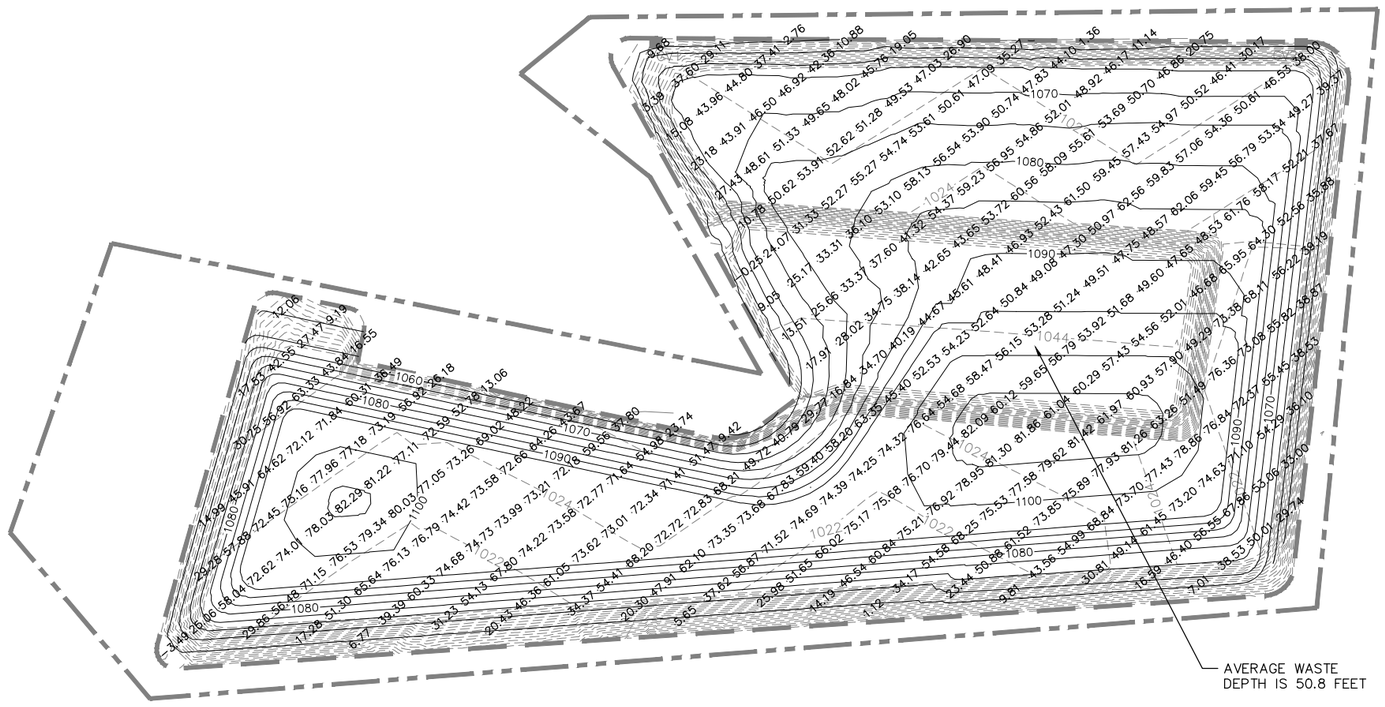
Tonnage accepted during final year of operation (51,543 tons) /309 days of operation per year

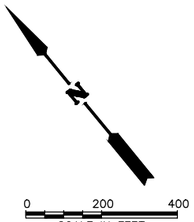
Maximum inflow = 167 tons/day

Average Tonnage accepted throughout the site life (49,445 tons) /309 days of operation per year

(*the waste accepted in year 2043 was not considered in calculating the average)

Average inflow = 160 tons/day





LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- 1090 — TOP OF WASTE
- 1044 — EXCAVATION
- 51.67 — HEIGHT OF WASTE

NOTES:

1. THE AVERAGE DEPTH OF WASTE WAS CALCULATED USING AUTOCAD. THE NUMBERS ON THE GRID SHOW THE WASTE DEPTH AT THAT SPECIFIC LOCATION.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF DEL RIO, TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 — LICENSED PROFESSIONAL ENGINEER — 09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD – NEW DRAWING	TM	05/2021
2.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

AVERAGE DEPTH OF WASTE

Date: MAY 2021
Designed: T. METAERIA
Drawn: J. TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE

IIIB.1

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_EGBASE.dwg DELR1900546_EGBASE_LF AREA COMPOSITE Sep 22, 2021 – 2:28pm C:\pwworking\cpy\pw_copy\tmetaferia\d0803772\DELR1900546 Figure IIIB.1.dwg LAYOUT: Layout1 USER:

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIC

LEACHATE AND CONTAMINATED WATER MANAGEMENT PLAN

Prepared for

City of Del Rio

October 2020

Revision 1, September 2021

09/07/2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

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APPENDICES

designed to convey collected leachate to the leachate collection sumps. The LCS piping is designed for post-settlement slopes and to meet each of the three criteria listed above.

The geotextiles used for the geocomposite drainage layer utilize 100% continuous-filament polyester or polypropylene. Extensive testing, including EPA 9090 for chemical resistance, has demonstrated that polyester and polypropylene are resistant to a wide range of chemical classes encountered in soil and to typical leachate. The LCS piping and the geonet portion of the geocomposite are constructed of polyethylene. Polyethylene is an industry standard material and is resistant to a wide range of chemical constituents, including those typically found in leachate.

3.1.3 Leachate Collection System Layout

Subtitle D Cells 1 - 5 have been constructed to date. For the Subtitle D cells, the leachate collection layer includes a geocomposite placed over the liner system to collect and transfer leachate to the leachate collection pipes and sumps. The currently constructed leachate collection system has been evaluated considering the leachate collection layer and leachate collection header pipe grades under the proposed landfill expansion conditions (i.e., after landfill foundation settlement - refer to Appendix IIIL – Geotechnical Report). Leachate collection layer slopes and slope lengths have been estimated for the proposed closed landfill conditions. Table 3-1 provides a design summary for the developed Subtitle D Cells. As shown in each case, the maximum depth of leachate that occurs in the liner system is less than 12 inches and the flow depth is less than the thickness of the drainage geocomposite.

For the undeveloped cell (Cell 6), the leachate collection layer will also be placed directly over the liner system. The leachate collection system in Cell 6, as well as the leachate collection system in the developed cells, is designed to function properly with the estimated overburden pressure that will be created by the proposed expansion. Material specifications are included in the following subsections for the cell. Table 3-1 shows that the maximum leachate depth for this cell is also less than 12 inches and the flow depth is less than the thickness of the drainage geocomposite. A leachate flow path slope of 1.0 percent was conservatively selected to represent post-settlement slopes for the Subtitle D cells to use in the HELP analysis included in Appendix IIIC-A. Table 3-1 presents a summary of the initial and post-settlement/design slope for each Subtitle D cell and also the maximum depth of leachate over the liner based on the HELP generated peak flow and the actual leachate generation information.

4 LEACHATE AND CONTAMINATED WATER STORAGE

4.1 Leachate Storage

Temporary leachate storage will be provided in the leachate collection sumps. The leachate collection sumps have been sized based on the amount of leachate generated. Table 4-1 summarizes the estimated leachate flow into the sump. The estimated leachate generation rate is based on the average leachate generation produced by the HELP model analysis. Details of the leachate sumps are provided in Appendix IIIA-A – Liner and Final Cover System Details.

Leachate levels in the sumps will be measured and recorded to evaluate leachate production and fluctuations. A form to record leachate measurements will be kept in the Site Operating Record. The sumps will be emptied by submersible pumps located within the sump section of the sidewall riser pipes to meet the design objective as required by the leachate sump operating plan presented on Table 3-3. Disposal of leachate is discussed in Section 5.

4.2 Contaminated Water Management

All water coming in contact with waste or contaminated soils shall be treated as contaminated water. Contaminated water will be contained at the working face. Contaminated water shall be controlled by site personnel as described in Section 28.1 of the Site Operating Plan and shall not be discharged from the facility without prior written authorization from the TCEQ.

Table 4-1 – Sump Flow

Condition	Rate (gpd/ac)	Sump Storage Summary				
		Sump for Cells 3-6				
		Active		Closed		Pump Capacity (gpm)
		Area (ac)	Rate (gpd)	Area (ac)	Rate (gpd)	
Active 10’ Waste	0	4.1	0	0	0	20
Interim 25’ Waste	0.35	4.1	1.43	0	0	20
Interim 50’ Waste	233	4.1	955.3	0	0	20
Interim 80’ Waste	667	4.1	2734.7	0	0	20
Closed 80’ Waste	209	4.1	856.9	20.5	4284.5	20
Total		20.5	4548.3	20.5	4284.5	

[1] Sumps for the largest drainage area (Cell 6) 20.5 acres.

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIID
LINER QUALITY CONTROL PLAN

Prepared for

City of Del Rio

October 2020
Revision 1 May 2021
Revision 2, September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

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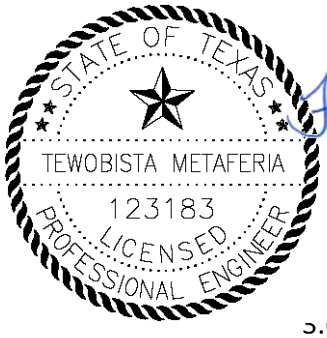

Tewobista Metaferia
09/07/2021

TABLES

APPENDIX

The surface of a constructed soil liner should be covered or otherwise protected within a period of six months to mitigate the effects of desiccation, surface erosion, and rutting due to traffic. Liner surfaces not covered within six months shall be checked by the soil liner evaluation report evaluator, who shall then submit a letter report on the findings to the executive director. Any required repairs shall be performed promptly. A new report shall be submitted on the new construction for all liners that need repair due to damage.

2.2.3 General Fill/Structural Fill

General fill/structural fill material will be uncontaminated earthen fill. General fill material placed below the bottom liner (e.g., over-excavated areas within the liner construction area) will be placed in uniform lifts which do not exceed 8 inches in loose thickness similar to compacted clay liners that will be placed over the back-filled area. The fill placed below the liner will be compacted to at least 95 percent of Standard Proctor maximum dry density (ASTM D 698) at a moisture content range at or above the optimum moisture content when it is used for below liner grades. Structural fill material (e.g., perimeter berm construction) will be placed in uniform lifts which do not exceed 12 inches in loose thickness and will be compacted to at least 90 percent of Standard Proctor maximum dry density (ASTM D 698).

2.2.4 Drainage Aggregate Around Pipes

The coarse aggregate selected for placement around the leachate collection pipes used in the leachate collection system (LCS) for the compacted clay liner and overliner discussed in Section 4 will consist of normal (e.g., unit weight of 90 to 110 pcf) or lightweight (e.g., unit weight less than 70 pcf) materials that comply with the following criteria. The LCS aggregate will have a calcium carbonate content less than 15 percent. Either the J&L Testing method or the ASTM D 3042 method, modified to use a solution of hydrochloric acid having a pH of 5, can be used to determine calcium carbonate content. The drainage aggregate will meet the following gradation for ASTM D 448, size number 467.

Sieve Size Square Opening	Percent Passing
2 inches	100
1 1/2 inches	95 – 100
% inch	35 – 70
3/8 inch	10 – 30
No. 4 (3/16 inch)	0 – 5

However, if approved by the POR, coarse aggregates not complying with the size number 467 gradation may also be used if demonstrated to have a hydraulic conductivity of at least $1X10^{-7}$ cm/s and meet the filter gradation requirements given below (in no case will the maximum rock size be more than 2 inches) for the specific leachate collection pipe perforation design:

For circular holes in the leachate collection pipe:

$$\frac{85\ Precent\ Size\ of\ Filter\ Material}{Hole\ Diameter} > 1.7$$

For slots in the leachate collection pipe:

$$\frac{85\ Precent\ Size\ of\ Filter\ Material}{Slot\ Width} > 2.0$$

The coarse aggregate will be tested for gradation (ASTM D 448) at the supply source or from the on-site stockpile prior to acceptance. Gradation testing will be conducted at a minimum frequency of 1 test per 3,000 cubic yards of coarse aggregate or per liner construction event if less than 3,000 cubic yards of coarse aggregate is required for the specific construction. The aggregate will be free of organics, angular rocks, foreign objects, or other deleterious materials. The physical characteristics of the aggregate will be evaluated through visual observation and laboratory classification testing before construction and visual observation during construction. The coarse aggregate may be tested during construction at the discretion of the CQA monitor. Results obtained during the drainage aggregate testing will be included in the SLER.

2.2.5 Protective Cover

Protective cover will be placed over the drainage layer in accordance with this section and approved Excavation Plan (Appendix IIIA, Appendix IIIA-A, Drawing IIIA.1). The 2 feet compacted clay liner will be covered with a minimum of 2 feet of protective cover for the Subtitle D liner. The protective cover will consist of soil materials that have not previously come in contact with solid waste or other deleterious materials. The protective cover will be free of organic matter, foreign objects, or other deleterious materials. The physical characteristics of the protective cover will be evaluated through visual observation (and laboratory testing if the POR deems it necessary) before construction and visual observation during construction. Additional testing during construction will be at the discretion of the CQA monitor. The protective cover will have passageways (i.e., chimney drains) to allow moisture to drain to the leachate collection system.

The protective cover layer will be placed using any low ground pressure equipment as outlined in Section 3.6. The protective cover will be placed by spreading in front of the spreading equipment.

The thickness of the protective cover layer placed over the compacted clay liner and overliner will be verified with surveying procedures at a minimum of 1 survey point per 5,000 square feet of constructed area by a registered surveyor or professional engineer with a minimum 2 reference points. If surveyor is a P.E., they will have experience in surveying and will provide a resume as appropriate. A P.E. can only sign the drawings if they conducted the surveying themselves. The survey results and method of surveying for the protective cover will be included in the SLER.

During construction the CQA monitor will:

- Verify that grade control is performed prior to work.
- Verify that underlying geosynthetic installations are not damaged during placement operations or by survey grade controls. Mark damaged geosynthetics and verify that damage is repaired.
- Verify that the cover soil for sideslopes is pushed from the toe up the slope.
- Monitor haul road thickness over geosynthetic installations and verify that equipment hauling and materials placement meet equipment specifications. (See Section 3.6)

- The POR will coordinate with the project surveyor to perform a thickness verification survey of the protective cover materials upon completion of placement operations. Verify corrective action measures as determined by the verification survey.

2.2.6 Anchor Trench Backfill

The anchor trench backfill material for geocomposite anchoring will be uncontaminated earthen material and will be placed in uniform lifts which do not exceed 12 inches in loose thickness and will be compacted. In-place moisture/density tests will be performed at the discretion of the CQA monitor to evaluate the quality of the backfill. When testing is performed, the compaction will be at least 90 percent of standard Proctor maximum dry density (ASTM D698).

2.2.7 Surface Water Removal

The excavation may encounter water from storm events. Soil liner will not be placed in standing water. The excavation area will therefore have a temporary sump area to collect water entering the excavation and be graded to allow drainage at planned areas. Portable pumps will be on site to dewater the sumps. Temporary earthen berms will be constructed to divert surface flow away from the excavation Surface water that accumulates on the constructed liner or geosynthetics surface will be removed promptly after the end of a rainfall event. POR will inspect and approve the constructed area that received rainfall prior to placement of overlying liner system component. The criteria for approval of the finished surface of the soil liner for geocomposite placement will follow the requirements of Section 2.3.3 and 2.3.4. Surface water from the site will be discharged per the site's TPDES permit requirement.

2.2.8 Liner Tie-In Construction

Newly constructed liners will be tied-in with any adjoining existing liners. Additionally, terminations will be constructed for future tie-ins along edges where the liner will be extended in the future. The tie-ins with existing clay liners will be constructed utilizing a sloped transition a minimum of 10 feet wide for the 2-foot-thick clay liner. Terminations for future tie-ins will be constructed by extending the clay liner approximately 10 feet past the limits for the cell under construction. The liner tie-in details are shown in Appendix IIIA - Landfill Unit Design Information. Waste and intermediate cover will not be deposited closer than 10 feet to the edge of any cell or 20 feet from the leading edge of a constructed clay liner (whichever is greater) where a future tie-in will be constructed. Red-colored markers (i.e., SLER markers) will be placed along the limits of the cells with constructed clay liners and tied to the site grid system in accordance with Title 30 TAC §330.143(b)(1).

2.2.9 Overliner Soil Subgrade Construction

The GCL subgrade prepared using the existing cover soil will have to be verified to have a minimum of 12 inches finished thickness. The existing soil final cover, where it exists, will be stripped to leave at least 12 inches of soil for GCL subgrade. As an alternative to verifying the thickness of existing cover soils, a 12-inch-thick soil may be placed as a single layer to establish GCL subgrade. The GCL subgrade will have elevations, slopes, thickness, and widths as depicted on overliner plan and details in Appendix IIIA - Landfill Unit Design Information. Refer to Section 5.3.1 for GCL subgrade preparation.

The GCL subgrade construction and testing will be conducted in a systematic and timely fashion. Delays will be avoided in overliner construction. Construction and testing of the overliner will generally not exceed 60 working days from beginning of GCL installation to completion of placement of protective cover. The TCEQ will be notified during construction if delays in excess of 60 days are anticipated. Reasons for overliner construction taking more than 60 days to complete will be fully explained in the GCLER submittal.

The existing soil intermediate cover will be reworked to include at least 12 inches of soil for GCL subgrade. The finished surface of the GCL subgrade must be rolled with a smooth, steel-wheeled roller to obtain a hard, uniform, and smooth surface. The surface of the GCL subgrade will then be inspected by the CQA monitor. All undesired materials will be removed from the GCL subgrade surface, and any voids created by removing undesired materials will be backfilled with subgrade material to the density specifications outlined for overliner construction and tested at the discretion of the CQA monitor.

Surveying will be performed to verify that the finished GCL subgrade layer has been constructed to a minimum thickness of 12 inches. Thickness verification may be performed by using settlement plates. The thickness verification locations will be established by a Texas registered surveyor or professional engineer on a 100-foot grid. The shaft extending upward from the base will be marked to indicate the minimum required thickness of the GCL subgrade. The GCL subgrade will be constructed to the minimum thickness marked on the shaft of the settlement plate. The POR and CQA monitor will verify that the GCL subgrade is placed uniformly between each settlement plate.

A GCL subgrade thickness drawing at each of the survey measurement grid points will be provided. Coordinates defining the perimeter of the overliner geomembrane subgrade will be called out on one of the final drawings. The GCL subgrade thickness drawing will be sealed by a Texas registered surveyor or professional engineer. After the construction of the GCL subgrade is complete, the Texas registered surveyor will survey the final elevation of the subgrade. The certification drawings will be included in the GCLER. The surveying will verify that the GCL subgrade slopes are consistent with the approved top of overliner plan. A statement that confirms that the as-built slopes are consistent with the approved top of overliner plan will be included in the GCLER.

Once the survey is complete, the settlement plate shaft will be removed and the resulting hole will be backfilled with bentonite or a bentonite/soil mixture consisting of at least 20 percent bentonite and compacted by hand tamping.

The POR will incorporate the subgrade-related information into the GCLER.

2.3 Construction Testing

2.3.1 Standard Operating Procedures

For CQA monitors with qualified professional experience in geotechnical engineering and/or engineering geology will perform field and laboratory tests in accordance with applicable standards specified in this LQCP. All quality control testing and evaluation of soil liners will be performed during construction of the liner and must be complete before placement of the leachate collection system, except for the testing required for the final constructed lift, verification of liner thickness, or cover material thickness. Standard operating and test procedures will be utilized per the POR's direction. Sampling from the constructed soil liner lifts will be performed in accordance with ASTM D 1587. The sampling holes (e.g., samples for coefficient of permeability test) will be backfilled with bentonite or bentonite/liner soil material mixture. Prior written approval from the TCEQ via a permit modification will be obtained if any changes will be made to material requirements or procedures set forth on this LQCP.

The following test standards apply as called out in this LQCP and in the technical specifications provided in this LQCP.

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIE
CLOSURE PLAN

Prepared for
City of Del Rio

October 2020
Revision 1 May 2021
Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

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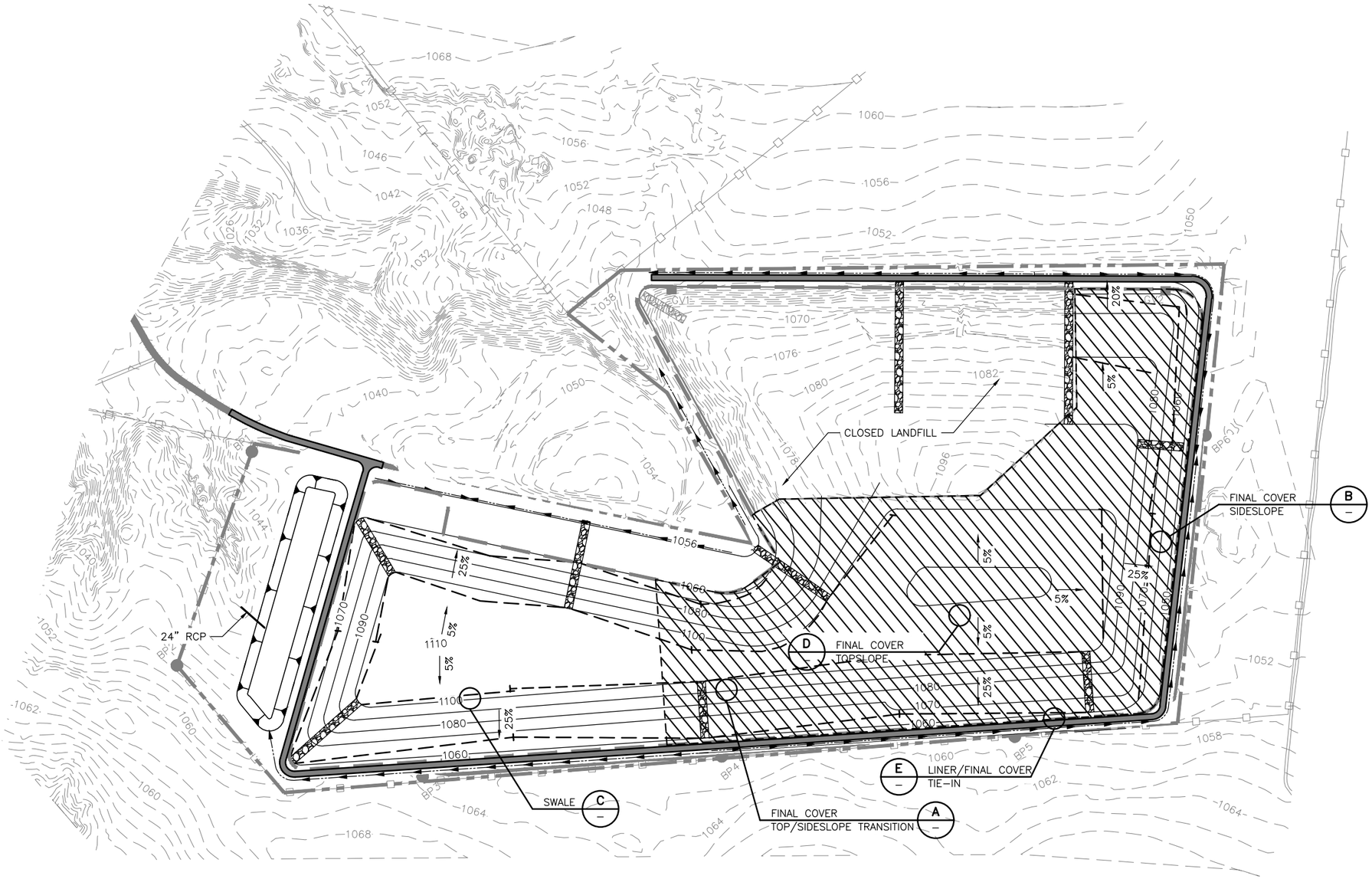
FIGURES

APPENDIX



0 200 400
SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- CLOSED CELL BOUNDARY
- LIMIT OF WASTE
- 1090 FINAL COVER CONTOURS
- 1084 EXISTING CONTOURS
- SWALES
- PERIMETER CHANNEL
- CHUTES
- BP1 GAS PROBE
- EXISTING SITE FENCE
- PROPOSED ACCESS ROAD
- CUT/FILL MARKERS
- EXISTING CHUTE
- GV2 GAS VENT
- AREA REQUIRING FINAL COVER SEE NOTE 6)

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1–5 & D TOPO WAS UPDATED SEPTEMBER, 2018 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS.
2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774–0796. DATED: 10–25–94.
3. REFER TO APPENDIX IIIH–SURFACE WATER DRAINAGE PLAN FOR DRAINAGE DESIGN INFORMATION.
4. MAXIMUM FINAL COVER ELEVATION IS 1113 FT–MSL. MAXIMUM TOP OF WASTE ELEVATION IS 1110.5 FT–MSL.
5. TYPICAL SIDESLOPES ARE 4H:1V. TYPICAL TOPSLOPE IS 5%.
6. THE LARGEST AREA REQUIRING FINAL COVER IS 37.3 ACRES.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

STATE OF TEXAS
TEMOBISTA METAFERIA
123183
LICENSED
PROFESSIONAL ENGINEER
09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	05/2021
1.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT
COMPLETION PLAN

Date: OCTOBER 2020
Designed: T. METAFERIA
Drawn: T. BENSON
Reviewed: B. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE
IIIE–1

REFERENCES: DELR1900546 Border Base Permit.dwg _Std ENVIRO SEALS.dwg DELR1900546_PCBASE.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546_ECBASE.dwg DELR1900546 Figure IIIE–1.dwg
Sep 14, 2021 – 12:34pm \\dalfile01.cpyone.com\Redirects\tblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIE–1.dwg LAYOUT: Layout1 USER:

APPENDIX IIIE-B
TCEQ FORM 20720

Texas Commission on Environmental Quality

Closure Plan for Municipal Solid Waste Type I Landfill Units and Final Facility Closure

This form is for use by applicants or site operators of Municipal Solid Waste (MSW) Type I landfills to detail the plan for closure of a landfill unit, closure of associated storage or processing units, and final closure of the facility to meet the requirements in 30 TAC Chapter 330, §330.63(h) and 30 TAC Chapter 330 Subchapter K for a MSW Type I facility.

If you need assistance in completing this form, please contact the MSW Permits Section in the Waste Permits Division at (512) 239-2335.

I. General Information

Facility Name: **City of Del Rio Landfill**

MSW Permit No.:**207B**

Site Operator/Permittee Name: **City of Del Rio**

II. Landfill and Other Waste Management Units and Operations Requiring Closure at the Facility

A. Facility Units

Table 1. Description of Landfill Units.

Name or Descriptor of Unit	Operating Status of Unit	Type of Liner System Under Unit	Above Grade Class 1 Disposal Cells in this Unit	Below Grade Class 1 Disposal Cells in this Unit	Other Class 1 Disposal Cells in this Unit (describe)	Size of Unit's Waste Footprint (acres)	Maximum Inventory of Waste Ever in Unit (indicate cubic yards or tons)	Other Necessary Information that Pertains to the Unit
Del Rio Municipal Landfill	**Active**	**Subtitle D and Pre-subtitle D**	☐	☐	☐	**79**	**29,377,617**	**Waste = Waste plus Daily Cover**
			☐	☐	☐			
			☐	☐	☐			
			☐	☐	☐			
Totals						79	29,377,617	

Table 2. Description of Waste Storage or Processing Units or Operations Associated with this Permit.

Type of Storage or Processing Unit or Operation (individual units may be closed at any time prior to or during the final facility closure as described in this plan)	Operational Status of Unit	Size of the Area Used for the Storage or Processing Unit or Operation (Acres)	Maximum Inventory of Waste Ever in Storage or Processing Unit or Operation (indicate cubic yards or tons)	Other Information (enter other necessary information that pertains to the unit)
			☐cubic yards ☐tons	
Totals				

B. Waste Inventory Summary

Table 3. Maximum Inventory of Wastes Ever On Site.

Item	Quantity (indicate cubic yards or tons)
Maximum inventory of waste in landfill units (total from Table 1)	**29,377,617** ☒cubic yards or ☐tons
Maximum inventory of waste in storage or processing units or operations (total from Table 2)	**29,377,617** ☒cubic yards or ☐tons
Total Maximum Inventory of Wastes ever on site over the active life of the MSW facility (sum of totals from Tables 1 and 2)	**29,377,617** ☒cubic yards or ☐tons

C. Drawings Showing Details of the Waste Management Units at Closure

Table 4. Location of the Drawings showing Details of the Waste Management Units at Closure (outlines, dimensions, maximum elevations of waste and final cover of

IV. Description of the Final Cover System Installation Procedure

A. Mode of Installation

Table 8. Mode of Final Cover Installation on the Landfill Units.

Landfill Unit Name or Descriptor	Largest Area of Unit Ever Requiring Final Cover (Acres)	Check this Column if Final Cover will be Placed in Installments as Permitted Elevation is Reached	Check this Column if Final Cover will be Placed when Entire Unit Area Reaches Permitted Elevation	Final Cover Installation Status
Del Rio Municipal Landfill	**37.3**	☒	☐	**Final cover has been placed over Cells 1 and 2.**
		☐	☐	
		☐	☐	
		☐	☐	

B. Installation Drawings for Final Cover and Drainage Features

The following attached plan and cross-section drawings show the final cover design details, the largest area requiring final cover, details of the sequence of installation of the final cover system, and all drainage features.

Table 9. List of Attached Installation Drawings for Final Cover and Drainage Features.

Drawing No.	Drawing Title	Description of Information Contained in Drawing
Figures B.4 to B.7 (Part III, App. IIIA-B)	**Varies**	**Cross Sections**
Figure IIIH-1	**Drainage Structure Plan**	
Figure IIIG-1	**Area Requiring Final Cover**	
Figure IIIE-1	**Completion Plan**	

VII. Professional Engineer's Statement, Seal, and Signature

Name: **Tewobista Metaferia, P.E.** Title: **Project Manager**

Date: 09/07/2021

Company Name: **CP&Y, Inc.** Firm Registration Number: **F-1741**

Professional Engineer's Seal

Signature

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIF
POST-CLOSURE CARE PLAN

Prepared for

City of Del Rio

09/07/2021

October 2020
Revision 1 May 2021

Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

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B. Post-Closure Care Maintenance Requirements and Activities for the Landfill Units that Stopped Receiving Waste Prior to October 9, 1993

The site operator will commence and conduct post-closure care maintenance of the units that stopped receiving waste prior to October 9, 1993 for a minimum of the first **five years** following commencement of post-closure care as specified below and in accordance with applicable rules under 30 TAC §330.463(a). Post-closure care maintenance will start on the date the professional engineer's certification of the completion of closure is accepted in writing by the TCEQ executive director and the site operator will carry out the following activities and operations during the period.

1. Maintenance of Right of Entry and Rights of Way

The site operator will retain the right of entry to and maintain all rights-of-way of the closed units in order to conduct periodic inspections of the units throughout the post-closure care period. TCEQ staff will have access to the site to conduct inspection or investigation that may be necessary during the period.

2. Inspection Activities and Correction of Problems

The site operator will conduct inspection of the closed landfill units at the frequencies indicated in Table 3 below, utilizing the inspection protocol maintained in the site operating record, and will correct all identified problems as needed.

Table 3: Inspection Activities Schedule

Post-Closure Care Inspection Item	Frequency of Inspection	Types of Deficiency Conditions to be looked for during Inspection
Final Cover Condition and Vegetation	**Weekly and within 72-hours of a rainfall event of 0.5 inches or more.**	**Inspect for proper placement, thickness, compaction, slope, settlement and erosion. Maintenance will be ongoing throughout post-closure care period. Correct problems as needed.**
Leachate Management Systems	**Weekly for sump and monthly for caps**	**Measure depth of leachate in sump, as required and Inspect the caps and piping of the cleanout riser and sump riser of the leachate collection system to prevent potential odor escape.**

XI. Engineer's Seal and Signature

Name: **Tewobista Metaferia, P.E.** Title: **Project Manager**

Date: 09/07/2021

Company Name: **CP&Y, Inc** Firm Registration Number: **F-1741**

Professional Engineer's Seal

Signature

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIG
CLOSURE AND POST-CLOSURE CARE COST ESTIMATE

Prepared for

City of Del Rio

October 2020
Revision 1 May 2021

Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

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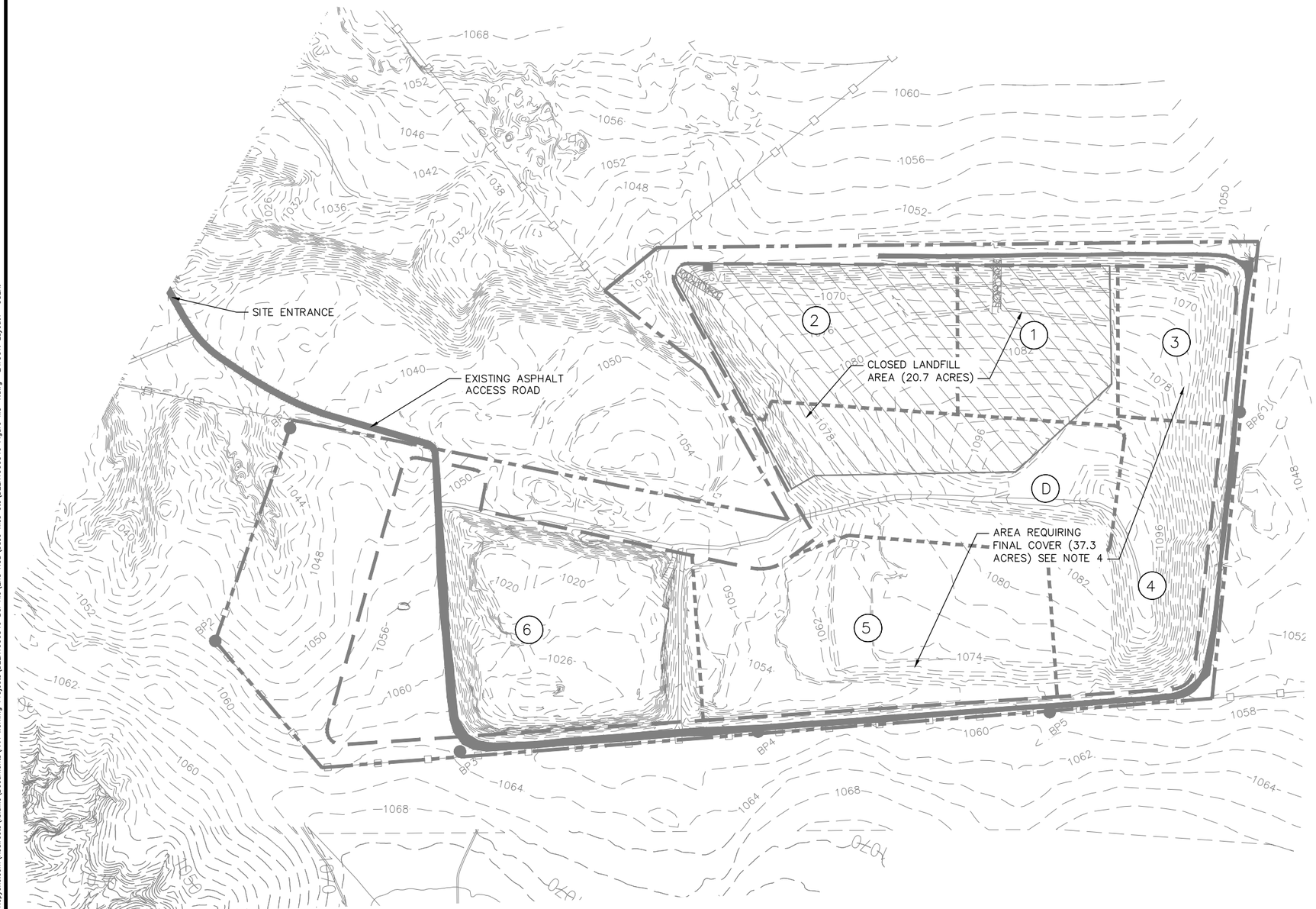
APPENDIX

Appendix IIIG-A TCEQ Forms



LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- -1084- EXISTING CONTOURS
- (1) CELL DESIGNATION
- BP1 GAS PROBE
- EXISTING SITE FENCE
- GV2 GAS VENT

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1,2,3,4 & D TOP UPDATED AUGUST 2018 AND CELLS 6 AND 6 UPDATED JANUARY 2020 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS. THE ELEVATIONS SHOWN ON THIS MAP ARE FOR THE CONTRACTORS GENERAL INFORMATION, ACTUAL ELEVATIONS VARY DUE TO ON-GOING LANDFILL ACTIVITIES.
2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774-0796. DATED: 10-25-94.
3. CELLS 1, 2 AND A SECTION OF THE PRE-SUBTITLE D WERE APPROVED FOR CLOSURE 2013 BY TCEQ.
4. THE 37.3 ACRES OF AREA REQUIRING FINAL COVER INCLUDES 6.9 ACRES OF THE PRE-SUBTITLE D AREA.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF DEL RIO TEXAS

STATE OF TEXAS — TEMOBISTA METAFERIA — 123183 LICENSED PROFESSIONAL ENGINEER — 09/07/2021

NO.	REVISION	BY	DATE
1.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

AREA REQUIRING FINAL COVER

Date: OCTOBER 2020
Designed: T. METAERIA
Drawn: J. TORRES
Reviewed: H. HINDMAN
CP&Y Proj. No. DELR1900546

FIGURE

IIIG-1

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_ECBASE.dwg DELR1900546_ECBASE_LF AREA COMPOSITE Sep 14, 2021 - 12:31pm \\dalfile01.cpyone.com\Redirects\Vblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIG-1.dwg LAYOUT: Layout1 USER:

TABLE IIIG-1
CLOSURE COST ESTIMATES
ACTIVE LANDFILL (37.3 acres)

Client: City of Del Rio
Project: Major Permit Amendment
Description: Closure Cost Estimates

Date: 10/16/2020
Job No: DELR1900546
By: T. Metaferia
Checked By: B. Hindman

Description	Quantity	Unit	Inflation Factor[1]	Unit Cost 2005	Unit Cost 2020	Total Cost
ENGINEERING						
Topographic Survey	1	LS	1.282	$17,020.00	$21,819.64	$21,819.64
Boundary Survey for Affidavit	1	LS	1.282	$4,000.00	$5,128.00	$5,128.00
Site Evaluation	1	LS	1.282	$2,900.00	$3,717.80	$3,717.80
Final Cover Plans and Specifications	1	LS	1.282		$50,000.00	$50,000.00
Final Cover Construction - Contract Administration	1	LS	1.282		$14,000.00	$14,000.00
Final Cover Construction - Observation and Quality Assurance	1	LS	1.282	$78,200.00	$100,252.40	$100,252.40
Affidavit to the Public	1	LS	1.282	$1,300.00	$1,666.60	$1,666.60
TPDES, Other Permits	1	LS	1.282	$6,000.00	$7,692.00	$7,692.00
Engineering Total						**$204,276.45**
Legal Fees	25%					$51,069.11
CONSTRUCTION						
Infiltration Layer	90,266	CY	1.282	$5.70	$7.31	$659,844.46
Erosion/vegetation layer (soil and topsoil)	60,177	CY	1.282	$4.00	$5.13	$308,709.72
Revegetation	37.3	Acre	1.282	$1,965.00	$2,519.13	$93,963.55
Site grading and drainage	37.3	Acre	1.282	$1,140.00	$1,461.48	$54,513.20
Subtotal						**$1,117,030.93**
Mobilization, bonds, insurance	10%					$111,703.09
TCEQ Administration	5%					$55,852.00
Construction Total						**$1,284,586.02**
Subtotal Closure Cost (Engineering + Legal + Construction)						**$1,539,931.59**
Contingency	10%					$153,993.16
Contract Performance Bond	2%					$30,798.63
Third Party Administration and Project Management	2.5%					$38,498.29
Subtotal						**$223,290.08**
TOTAL CLOSURE COST						**$1,763,221.67**

Note:

1. Inflation factor is to bring the 2005 dollars to 2018. The inflation factors used are 2.9, 2.7, 2.2, 1.2, 1.0, 2.1, 1.8, 1.5, 1.5, 1.0, 1.3, 1.8, 2.3 and 1.8 for years 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018 and 2019 respectively. The inflation factors are obtained from the TCEQ website.

TABLE IIIG-2
POST-CLOSURE COST ESTIMATES
30-YEAR POST-CLOSURE PERIOD

Client: City of Del Rio
Project: Major Permit Amendment
Description: Post-Closure Cost Estimates

Date: 10/16/2020
Job No: DELR1900546
By: T. Metaferia
Checked By: B. Hindman

Description	Quantity	Unit	Inflation Factor[1]	Unit Cost 2005	Unit Cost 2020	Total Cost
ENGINEERING						
Site Inspection and Recordkeeping	30	YR	1.282	$975.00	$1,249.95	$37,498.50
Correctional Plans and Specifications	30	YR	1.282	$1,142.00	$1,464.04	$43,921.20
Methane Monitoring[1]	30	YR	1.282	$3,885.00	$4,980.57	$149,417.10
LFG Probe Plugging and Abandoment	6	EA			$1,465.00	$8,790.00
Engineering Total						**$239,626.80**
CONSTRUCTION						
Grading/revegetation of Final Cover and Drainage Ditches	30	YR	1.282	$4,685.00	$6,006.17	$180,185.10
LFG Collection System Maintenance	30	YR	1.282		$394.00	$11,820.00
Perimeter Fence and Gates Maintenance	1	LS			$6,000.00	$6,000.00
Access Roads Maintenance	1	LS			$10,000.00	$10,000.00
Construction Total						**$208,005.10**
LEACHATE DISPOSAL						
50,940 gallons/year@$0.58/gal[3]	30	YR			$29,545.20	$886,356.00
Sutotal Post-Closure Cost (Current Cost of Engineering + Construction + Leachate)						**$1,333,987.90**
Contingency	10%					$133,398.79
Third Party Administration and Project Management Costs	2.5%					$33,349.70
Total Post-Closure Cost (Current Cost of Engineering + Construction + Leachate)						**$1,500,736.39**

Note:

1. Methane monitoring is preformed quarterly

2. Inflation factor is to bring the 2005 dollars to 2018. The inflation factors used are 2.9, 2.7, 2.2, 1.2, 1.0, 2.1, 1.8, 1.5, 1.5, 1.0, 1.3, 1.8, 2.3, and 1.8 for years 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017 2018, and 2019 respectively. The inflation factors are obtained from the TCEQ website.

3. The disposal rate is assumed to be to $0.58/gallon.

APPENDIX IIIG-A
TCEQ FORMS

- TCEQ Form 20721
- TCEQ Form 20723

Texas Commission on Environmental Quality

Closure Cost Estimate Form for Municipal Solid Waste Type I Landfills

This form is for use by applicants or site operators to provide cost estimates for closure of MSW Type I landfills to meet the requirements in 30 Texas Administrative Code (TAC) Chapter 330, Section 330.63(j) and 30 TAC Chapter 330 Subchapter L. The costs to be provided herein are cost estimates for hiring a third party to close the largest waste fill area that could potentially be open in the year to follow and those areas that have not received final cover. If you need assistance in completing this form, please contact the MSW Permits Section in the Waste Permits Division at (512) 239-2335.

Facility Name: **City of Del Rio Landfill**

MSW Permit No.: **207B**

Site Operator/Permittee Name and Mailing Address: **City of Del Rio**

114 W Martin St

Del Rio, TX 78840

Total Closure Cost Estimate (2020 Dollar Amount): **$1,763,221.67**

I. Professional Engineer's Statement, Seal, and Signature

I am a licensed professional engineer in the State of Texas. To the best of my knowledge, this Closure Cost Estimate has been completed in substantial conformance with the facility Closure Plan and, in my professional opinion, is in compliance with Title 30 of the Texas Administrative Code, Chapter 330.

Name: **Tewobista Metaferia, P.E.** Title: **Project Manager**

Date: 09/07/2021

Company Name: **CP&Y, Inc.** Firm Registration Number: **F-1741**

Professional Engineer's Seal

09/07/2021

Professional Engineer's Signature

site. The report will identify all areas of work and the associated implementation costs necessary to safely close the landfill operations with recommendations on how to fulfill these needs.

Enter additional site evaluation work or cost element details as site-specific conditions warrant: **N/A**

1.4. Development of Plans

The final closure, plan the final cover system design and specifications, grading and drainage plans, specification for revegetation, design of any other improvements to bring the site into compliance with the permit, the closure schedule, and coordination with the TCEQ and provision of closure notice to the public.

Enter additional development of plans work or cost element details as site-specific conditions warrant: **N/A**

1.5. Contract Administration (bidding and award)

The third-party consultant will advertise the project, receive the bids, evaluate the bids, award the closure construction contract and administer the contract during construction.

Enter additional contract administration work or cost element details as site-specific conditions warrant: **N/A**

1.6. Closure Inspection and Testing

The professional of record will observe closure construction, perform cover thickness and permeability verification, and prepare an evaluation report upon completion of closure.

Enter additional closure inspection or testing work or cost element details as site-specific conditions warrant: **N/A**

1.7. TPDES and other Permits

The third-party consultant will prepare plans, specifications, and other documents necessary for compliance with applicable federal and state laws and requirements, including the Clean Water Act, for the proper closure of the site.

Enter additional TPES or other permits work or cost element details as site-specific conditions warrant: **N/A**

1.8. Additional Engineering Cost Items Not Listed on the Worksheet

List the Attachment(s) detailing any additional engineering cost items necessary to close the site that is not already included as a line item on the worksheet: **Legal fees which is estimated to be 25% of the total engineering cost. The cost of public affidavit is also taken into account in the cost estimates. Refer to page IIIG-3** Also, reference

2.4. Site Fencing and Security

Site fencing and security must be included for the area which has received waste and have no existing approved fencing.

Enter additional site fencing and security work or cost element details as site-specific conditions warrant: **N/A**

2.5. Landfill Gas Monitoring and Control Systems

Enter information for Items 2.5.1 through 2.5.6.

Final installation of the landfill gas monitoring and control systems must include the installation costs of pipes and appurtenances. In the event of a forced closure, the systems may not have been completed, thus, the estimated costs to complete the landfill gas monitoring and control system must be provided.

Enter additional landfill gas monitoring and control systems work or cost element details as site-specific conditions warrant: **N/A**

2.6. Groundwater Monitoring System

2.6.1. Monitor Well Installation

Upon closure of the site, it may be necessary to relocate the compliance boundary. This requires the installation of new monitor wells.

Enter additional groundwater monitoring system work or cost element details as site-specific conditions warrant: **N/A**

2.6.2. Piezometer and Monitor Well Plugging and Abandonment

Piezometer or monitor well abandonment is the cost of abandoning (plugging) piezometers or monitor wells that are no longer needed. Determine the number of piezometers or monitor wells to be abandoned and include the total cost.

Enter additional plugging and abandonment work or cost element details as site-specific conditions warrant: **N/A**

2.7. Leachate Management

2.7.1. Completion of Existing Leachate Collection System

In the event of a forced closure, there may be circumstances where the leachate collection system has not been completed. In this event, the leachate collection system must be closed with a permanent outfalls and permanent cleanouts installed.

Enter additional leachate management work or cost element details as site-specific conditions warrant: **N/A**

2.8. Stormwater Management

2.8.1. Stormwater Drainage Management System

To reduce the potential long-term impacts of the landfill on surface water quality, drainage features must be incorporated into the final cover design to direct runoff, minimize erosion, control sediments, and avoid ponding of stormwater. The drainage system construction costs must be included.

Enter additional stormwater drainage management work or cost element details as site-specific conditions warrant: **N/A**

2.9. Additional Construction Cost Items Not Listed on Worksheet

List the Attachments detailing any additional construction cost items necessary to close the site that is not already included as a line item on the worksheet: **TCEQ administrative fees have been which is estimated to be 5% of the construction cost is taken into account in the cost estimate. Refer to page IIIG-3.** Also, reference these Attachments in the "Units" column on this line of the worksheet. Provide the total cost of all additional construction cost items in the "Cost" column.

2.10. Construction Costs Subtotal

2.10.1. Enter the sum of construction costs in Items 2.1 through 2.9.

3. Storage and Processing Unit Closure Costs

For landfills that incorporate storage and/or processing operations that are not separately authorized, all waste and processed and unprocessed materials associated with storage and/or processing units must be removed during the closure process.

3.1. Waste Disposal

The cost of disposal of waste at an authorized facility. *Enter additional waste disposal work or cost element information as necessary.*

3.2. **N/A** Material Removal and Disinfection

The cost of removal, including transportation, of any remaining processed and unprocessed materials to an authorized off-site location. *Enter additional material removal and disinfection work or cost element information as necessary.*

3.3. **N/A** Demolition and Disposal

The cost of dismantling and/or disinfection of storage and/or processing units and disposal, as applicable. *Enter additional demolition and disposal work or cost element information as necessary.*

3.4. **N/A** Additional Storage and Processing Unit Closure Cost Items Not Listed in Worksheet

List the Attachments detailing any additional storage and processing unit closure cost items necessary to close the site that is not already included as a line item on the worksheet. **N/A** Also, reference these Attachments in the "Units" column on this line of the worksheet. Provide the total cost of all additional storage and processing unit closure cost items in the "Cost" column.

4. Sum of Cost Subtotals

4.1. Enter the sum of engineering, construction, and storage and processing unit closure cost subtotals from lines 1.9.1, 2.10.1, and 3.5.1.

5. Contingency

5.1. Add an amount equal to at least 10 percent of the sum of cost subtotals to cover unanticipated events during implementation of closure activities.

6. Contract Performance Bond

6.1. Add an amount equal to at least 2 percent of the sum of cost subtotals for purchase of a surety bond to guarantee satisfactory completion of the closure activities.

7. Third Party Administration and Project Management Costs

7.1. Add an amount equal to at least 2.5 percent of the sum of cost subtotals to cover the cost for a third party hired by TCEQ to administer the closure activities.

8. Total Closure Cost

8.1. Enter the sum of the amounts on lines 4.1, 5.1, 6.1, and 7.1.

IV. Closure Cost Estimates Worksheet

A. Landfill Data

Total Permitted Waste Disposal Area: **79 acres**

Largest Area Requiring Final Cover in the year to follow: **37.3 acres**

Total Filled Area with Constructed Final Cover: **20.7 acres**

Total Area Certified Closed: **20.7 acres**

Number of Monitor Wells to be Installed for Closure: 0

Number of Gas Probes to be Installed for Closure: 0

Total Acreage Needing LFG Collection and Control System: 0 acres

The unit or lump sum cost for each item is based on the work items and cost elements described in Section III of this Closure Cost Estimate document:

Yes ☒ No ☐ Partially ☐

(*if "No" or "Partially" is checked, please include attachments describing the additional work items and detailing the unit, quantities, and costs for the additional items*)

B. Facility Drawings and Financial Assurance Documentation

- Facility drawings
  - Attach facility drawings showing the closure areas to which the closure cost estimates apply.
- Financial assurance documentation
  - For an existing facility, attach a copy of the documentation required to demonstrate financial assurance as specified in 30 TAC Chapter 37, Subchapter R.
  - For a new facility, a copy of the required documentation shall be submitted 60 days prior to the initial receipt of waste.

C. Attachments

- Additional Engineering, Construction, and Storage and Processing Units Cost Items Details

D. Closure Cost Estimates Worksheet

If any item listed in this worksheet is not applicable to the subject facility, enter "NA" (Not Applicable) in the affected field.

Table 1. Closure Cost Estimates Worksheet.

Item No.	Item Description	Units[1]	Quantity	Unit Cost	Cost	Source of Unit Cost Estimate[2]
1. Engineering Costs						
1.1	Topographic Survey	Lump Sum	1	21819.64	21,819.64	4
1.2	Boundary Survey	Lump Sum	1	5,128.00	5,128.00	4
1.3	Site Evaluation	Lump Sum	1	3717.80	3,717.80	4
1.4	Development of Plans	Lump Sum	1	50000.00	50,000.00	2
1.5	Contract Administration (bidding and award)	Lump Sum	1	14,000.00NA	14,000.00	2
1.6	Closure Inspection and Testing	Lump Sum	1	100,252.40	100,252.40	4
1.7	TPDES and other Permits	Lump Sum	1	7,692.00	7,692.00	NA
1.8	Additional Engineering Cost Items (describe in attachments)	Lump Sum	1	1,666.60	1,666.60	4
1.9 Engineering Costs Subtotal						
1.9.1	Engineering Costs Subtotal				204,276.45	
2. Construction Costs						
2.1 Mobilization						
2.1.1	Mobilization of Personnel and Equipment	Lump Sum	1	10% of Const Cost	111,703.09	4
2.2 Final Cover System						
2.2.1 Side Slope Cover (the top slope quantities are included in this section to be conservative)						
2.2.1a	Infiltration Layer – Compacted Clay	Cubic Yards	90,266	7.31	659,844.46	4
2.2.1b	Infiltration Layer – Geosynthetic Clay Liner	Square Feet	NA	NA	NA	NA

Item No.	Item Description	Units[1]	Quantity	Unit Cost	Cost	Source of Unit Cost Estimate[2]
2.2.1c	Flexible Membrane Cover – HDPE	Square Feet	NA	NA	NA	NA
2.2.1d	Flexible Membrane Cover – LLDPE	Square Feet	NA	NA	NA	NA
2.2.1e	Drainage Layer – Aggregate	Cubic Yards	NA	NA	NA	NA
2.2.1f	Drainage Layer – Drainage Geocomposite Material	Square Feet	NA	NA	NA	NA
2.2.1g	Erosion Layer	Cubic Yards	60,177	5.13	308,709.72	4
2.2.1h	Vegetation	Acres	37.3	2,519.13	93,963.55	4
2.2.2 Top Slope Cover						
2.2.2a	Infiltration Layer – Compacted Clay	Cubic Yards	NA	NA	NA	NA
2.2.2b	Infiltration Layer – Geosynthetic Clay Liner	Square Feet	NA	NA	NA	NA
2.2.2c	Flexible Membrane Cover – HDPE	Square Feet	NA	NA	NA	NA
2.2.2d	Flexible Membrane Cover – LLDPE	Square Feet	NA	NA	NA	NA
2.2.2e	Drainage Layer – Aggregate	Cubic Yards	NA	NA	NA	NA
2.2.2f	Drainage Layer – Drainage Geocomposite Material	Square Feet	NA	NA	NA	NA
2.2.2g	Erosion Layer	Cubic Yards	NA	NA	NA	NA
2.2.2h	Vegetation	Acres	NA	NA	NA	NA
2.2.3 Cells for Class 1 Nonhazardous Industrial Waste						
2.2.3a	Dike Construction	NA	NA	NA	NA	NA
2.3 Site Grading						
2.3.1	Site Grading	Acres	37.3	1,461.48	54,513.20	4
2.4 Site Fencing and Security						
2.4.1	Site Fencing and Security	NA	NA	NA	NA	NA
2.5 Landfill Gas Monitoring and Control System						
2.5.1	Gas Control Wells	NA	NA	NA	NA	NA

Item No.	Item Description	Units[1]	Quantity	Unit Cost	Cost	Source of Unit Cost Estimate[2]
2.5.2	Gas Header Piping	NA	NA	NA	NA	NA
2.5.3	Gas Lateral Piping	NA	NA	NA	NA	NA
2.5.4	Flare Station	Lump Sum	NA	NA	NA	NA
2.5.5	Condensate Sumps	NA	NA	NA	NA	NA
2.5.6	Completion of LFG Monitoring System	NA	NA	NA	NA	NA
2.6 Groundwater Monitoring System						
2.6.1	Groundwater Monitoring Well Installation	Each	NA	NA	NA	NA
2.6.2	Piezometer and Monitor Well Plugging and Abandonment	Each	NA	NA	NA	NA
2.7 Leachate Management						
2.7.1	Completion of Leachate Management System	NA	NA	NA	NA	NA
2.8 Stormwater Management						
2.8.1	Stormwater Drainage Management System	NA	NA	NA	NA	NA
2.9 Other Cost Items						
2.9.1	Additional Construction Cost Items (describe in attachments)	Lump Sum			55,852.00	4
2.10 Construction Costs Subtotal						
2.10.1	Construction Costs Subtotal				1,284,586.02	
3. Storage and Processing Unit Closure Costs						
3.1	Waste Disposal	☐ Tons ☐ Cubic Yards	NA	NA	NA	NA
3.2	Material Removal and Disinfection	NA	NA	NA	NA	NA
3.3	Demolition and Disposal Units	NA	NA	NA	NA	NA
3.4	Additional Storage and Processing Unit Closure Cost Items (describe in attachments)	NA	NA	NA	NA	NA

Item No.	Item Description	Units[1]	Quantity	Unit Cost	Cost	Source of Unit Cost Estimate[2]
3.5 Storage and Processing Unit Closure Costs Subtotal						
3.5.1	Storage and Processing Unit Closure Costs Subtotal				NA	
4. Sum of Engineering, Construction, and Storage and Processing Unit Closure Costs						
4.1	Sum of Engineering, Construction, and Storage and Processing Unit Closure Cost Subtotals				255,345.56	
5. Contingency						
5.1	Contingency (10% of Sum of Engineering, Construction, and Storage and Processing Unit Closure Cost Subtotals)				153,993.16	
6. Contract Performance Bond						
6.1	Contract Performance Bond (2% of Sum of Engineering, Construction, and Storage and Processing Unit Closure Cost Subtotals)				30,798.63	
7. Third Party Administration and Project Management Costs						
7.1	Third Party Administration and Project Management Costs (2.5% of Sum of Engineering, Construction, and Storage and Processing Unit Closure Cost Subtotals)				38,498.29	
8. Total Closure Costs						
8.1	Total Closure Costs (sum of amounts in Sections 4, 5, 6, and 7)				1,763,221.67	

[1] For items marked "specify," the responsible professional engineer will enter appropriate unit of measurement

[2] Sources of Unit Costs for Cost Estimates table may include:
(1) Published Cost Estimator Manuals (e.g., RS Means);
(2) Third Party Quotes (e.g., Environmental Field Services Contractors);
(3) Verifiable Data based on Actual Operations; or
(4) Other sources of cost acceptable to the executive director of the TCEQ.

Texas Commission on Environmental Quality

Post-Closure Care Cost Estimate Form for Municipal Solid Waste Type I Landfills

This form is for use by applicants or site operators to provide post-closure care cost estimates for post-closure care of MSW Type I landfills to meet the requirements in 30 Texas Administrative Code (TAC) Chapter 330, Section 330.63(j) and 30 TAC Chapter 330 Subchapter L. The costs to be provided herein are cost estimates for hiring a third party to conduct post-closure care of the largest waste fill area that has been certified closed in writing by the TCEQ executive director.

If you need assistance in completing this form, please contact the MSW Permits Section in the Waste Permits Division at (512) 239-2335.

I. General Information

Facility Name: **City of Del Rio Landfill**

MSW Permit No.: **207B**

Date: 09/07/2021

Revision Number: 2

Site Operator/Permittee Name and Mailing Address: **City of Del Rio**

114 W Martin St

Del Rio, TX 78840

Total Post-Closure Care Cost Estimate (20 20 Dollar Amount): **$1,500,736.39**

II. Professional Engineer's Statement, Seal, and Signature

I am a licensed professional engineer in the State of Texas. To the best of my knowledge, this Post- Closure Care Cost Estimate has been completed in substantial conformance with the facility Post-Closure Care Plan and, in my professional opinion, is in compliance with Title 30 of the Texas Administrative Code, Chapter 330.

Name: **Tewobista Metaferia, P.E.** Title: **Project Manager**

Date: 09/06/2021

Company Name: **CP&Y, Inc** Firm Registration Number: **F-1741**

Professional Engineer's Seal

Tewobista Metaferia

09/07/2021

Signature

Table 1: Post-Closure Care Cost Estimates

Item No.	Item Description	Units	Annual Qty.	Unit Cost	Annual Cost	Source of Unit Cost Estimate[i]
1.0 Engineering Costs						
1.1	Site Inspection and Recordkeeping[ii]	YR	30	1,249.95	37,498.50	4
1.2	Correctional Plans and Specifications	YR	30	1,464.04	43,921.20	4
1.3 Site Monitoring						
1.3.1 Groundwater Monitoring System						
1.3.1(a)	Sampling and Analysis of GW Monitoring Wells (Quantity = 2 x Number of wells)	Wells	NA	NA	NA	NA
1.3.1(b)	Piezometers/Well Abandonment	Each	NA	NA	NA	NA
1.3.2 LFG Monitoring System						
1.3.2(a)	LFG Quarterly Monitoring (Quarterly)	YR	30	4,980.57	149,417.10	4
1.3.2(b)	LFG Probe Plugging and Abandonment	Each	6	1,465.00	8,790.00	2
1.4 Additional Engineering Cost Items (Detail in Attachments)						
1.4.1	Additional Engineering Cost Items (describe in attachments)	NA			NA	
1.5 Engineering Costs Subtotal						
1.5.1	Engineering Costs Subtotal				239,626.80	
2.0 Construction and Maintenance Costs						
2.1	Cap and Sideslopes Repairs and Revegetation	YR	30	6006.17	180,185.10	
2.2	Mowing and Vegetation Management	The cost for this line item is included in item no. 2.1.				

Item No.	Item Description	Units	Annual Qty.	Unit Cost	Annual Cost	Source of Unit Cost Estimate[i]
2.3	Groundwater Monitoring System Maintenance	NA	NA	NA	NA	NA
2.4	LFG Monitoring Probes Maintenance	YR	30	394.00	11,820.00	4
2.5	LFG Collection System Maintenance	NA	NA	NA	NA	NA
2.6	Perimeter Fence and Gates Maintenance	LS	1	6,000.00	6,000.00	1
2.7	Access Roads Maintenance	LS	1	10,000.00	10,000.00	1
2.8	Drainage System Cleanout/Repairs	The cost for this line item is included in item no. 2.1.				
2.9 Additional Construction and Maintenance Cost Items (Details in Attachment)						
2.9.1	Additional Construction and Maintenance Cost Items (details in attachments)	NA			NA	
2.10 Construction and Maintenance Costs Subtotal						
2.10.1	Construction and Maintenance Costs Subtotal				208,005.10	
3.0 Leachate Management						
3.1	Leachate Management System Operation and Maintenance	NA	NA	NA	NA	
3.2	Leachate Disposal	Gal/ YR	50,940	29545.20	886,356.00	2
3.3 Additional Leachate Management Cost Items (Details in Attachments)						
3.4	Additional Leachate Management Cost Items (details in attachments)	NA			NA	
3.5 Leachate Management Costs Subtotal						
3.5.1	Leachate Management Costs Subtotal				886,356.00	

Item No.	Item Description	Units	Annual Qty.	Unit Cost	Annual Cost	Source of Unit Cost Estimate[i]
4.0 Sum of Engineering, Construction, and Leachate Management Costs						
4.1	Sum of Engineering, Construction, and Leachate Management Cost Subtotals				1,333,987.90	
5.0 Contingency						
5.1	Contingency (10% of Sum of Engineering, Construction, and Leachate Management Cost Subtotals)				133,398.79	
6.0 Third Party Administration and Project Management Costs						
6.1	Third Party Administration and Project Management Costs (2.5% of Sum of Engineering, Construction, and Leachate Management Cost Subtotals)				33,349.70	
7. Total Post-Closure Cost						
7.1	Total Annual Post-Closure Cost (Sum of amounts in Sections 4, 5, and 6)				50,024.55	
7.2	30 Year Post-Closure Costs (Total Annual Post-Closure Cost x 30)				1,500,736.39	

[i] Sources of Unit Cost Estimates may include:
(1) Published Cost Estimator Manuals (e.g., RS Means);
(2) Third Party Quotes (e.g., Environmental Field Services Contractors); or
(3) Verifiable Data based on Actual Operations

[ii] Example Description for Item No. 1.1 – "Includes costs for site inspection performed at least annually for identification of areas experiencing settlement or subsidence, erosion or other drainage-related problems, inspection of the leachate collection system, gas monitoring system and LFG monitoring system."

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIJ
GEOLOGY REPORT

Prepared for

City of Del Rio

October 2020
Revision 1 May 2021
Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

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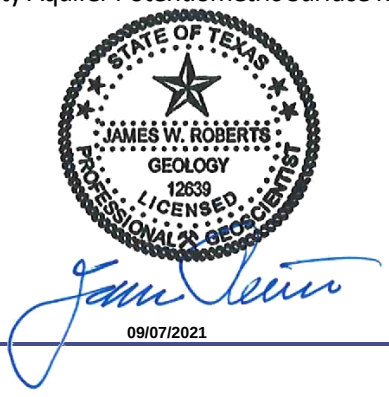
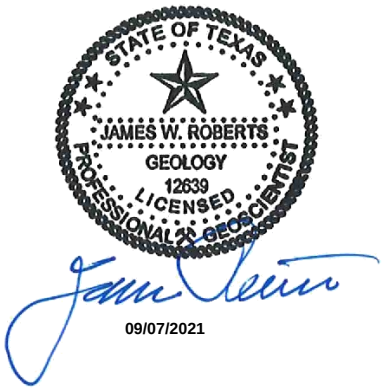
TABLES

FIGURES



APPENDICES

Appendix IIIJ-A	Hydrogeologic Data
Appendix IIIJ-B	Site Exploration Data
Appendix IIIJ-C	Geotechnical Reports



GEOLOGY REPORT CERTIFICATION

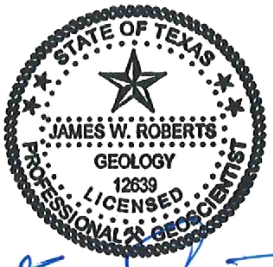
Site Information

- Site: Del Rio Landfill
- Site Location: Val Verde County
- MSW Permit No.: 207A

Qualified Groundwater Scientist Statement

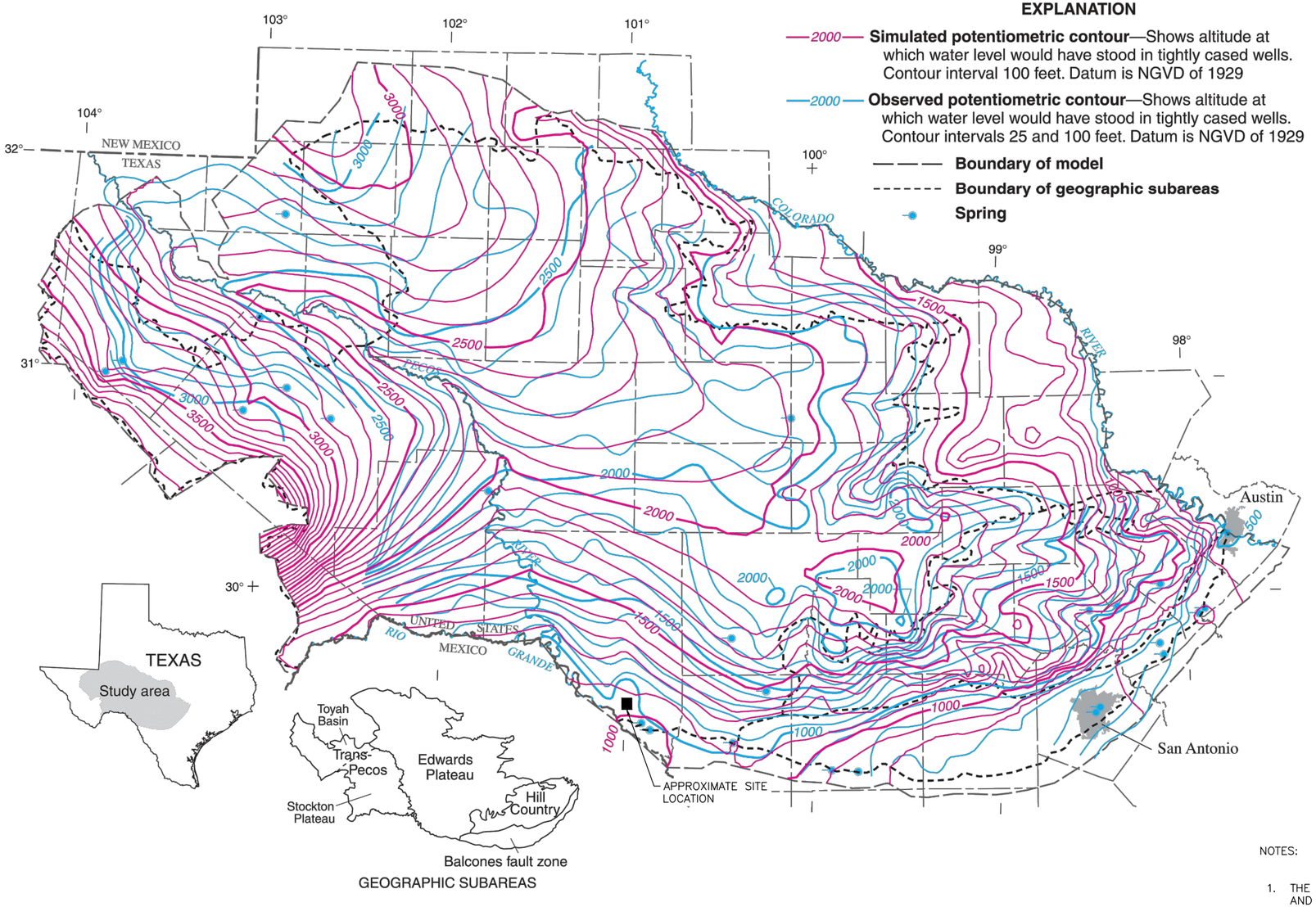
I, James W. Roberts, am a licensed Professional Geoscientist in Texas and have prepared the Geology Report which is made a part of Appendix IIIJ of this permit application. In my professional opinion this report meets the requirements outlined under 30 TAC §330.63(e). This report has been completed specifically for the Del Rio Landfill. The only warranty made by me is that the report was prepared using the same degree of care and skill ordinarily exercised for similar projects by other professional geoscientists. No other warranty, expressed or implied, is intended.

Firm/Address: CPY, Inc.
1820 Regal Row, Suite 200
Dallas, TX 75235



Signature: _____
James W. Roberts

Date: 09/07/2021



NOTES:

1. THE MAP WAS REPRODUCED FROM THE HYDROGEOLOGY AND GROUND–WATER FLOW IN THE EDWARDS–TRINITY AQUIFER SYSTEM, WEST–CENTRAL TEXAS, REGIONAL AQUIFER–SYSTEM ANALYSIS PROFESSIONAL PAPER.

STATE OF TEXAS
JAMES W. ROBERTS
GEOLOGY
12639
LICENSED
PROFESSIONAL GEOSCIENTIST

09/07/2021

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

NO.	REVISION	BY	DATE
1.	1ST NOD – NEW DRAWING	TM	05/2021
2.	2ND NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 2078
MAJOR PERMIT AMENDMENT

REGIONAL EDWARDS–TRINITY AQUIFER POTENTIOMETRIC SURFACE MAP

Date: MAY 2021
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: J. ROBERT, P.G.
CP&Y Proj. No. DELR1900546

FIGURE
1–1

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS
TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION
PART III — SITE DEVELOPMENT PLAN

APPENDIX IIIM
LANDFILL GAS MANAGEMENT PLAN

Prepared for

City of Del Rio

October 2020
Revision 1 May 2021
Revision 2 September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

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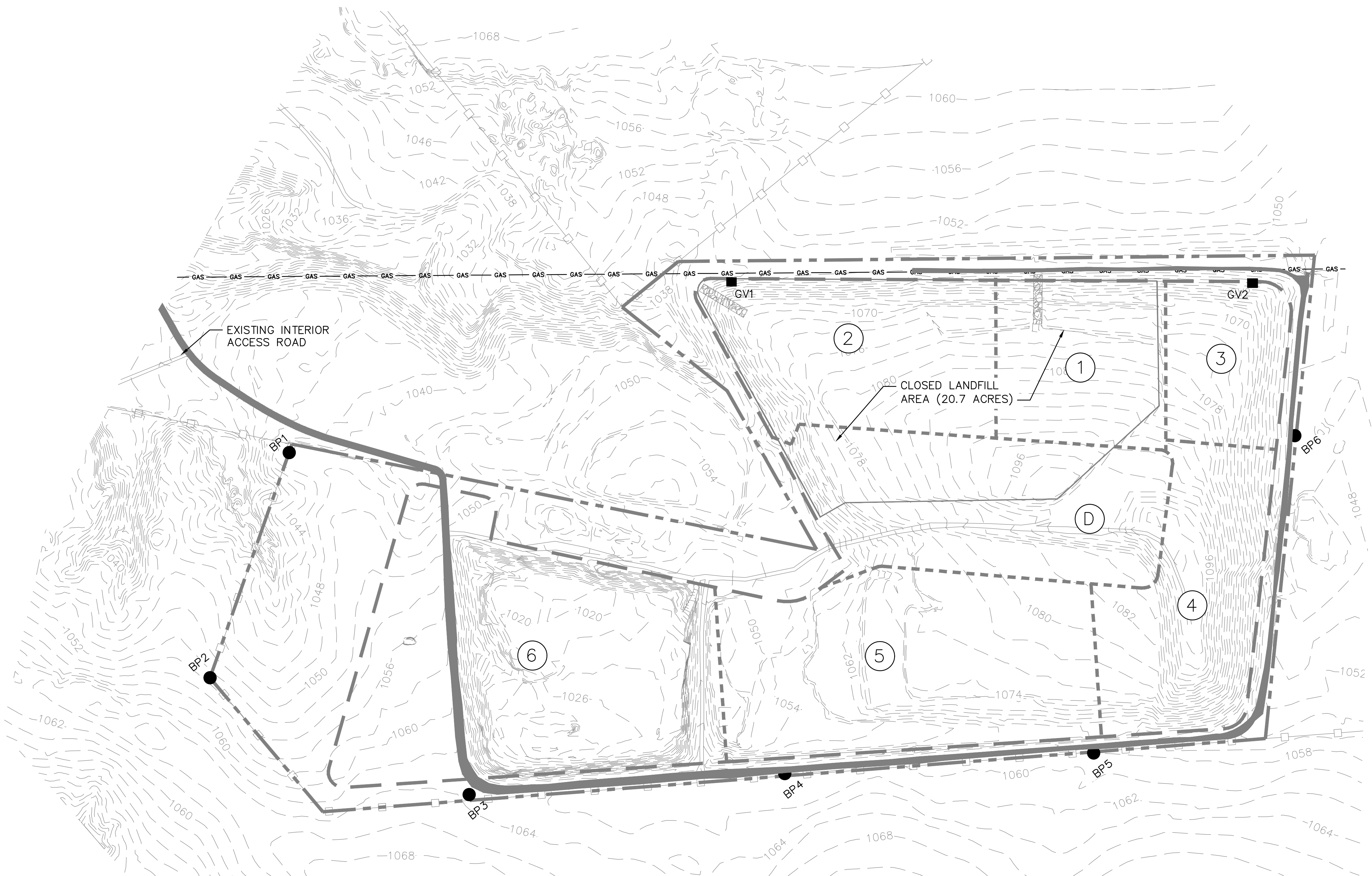
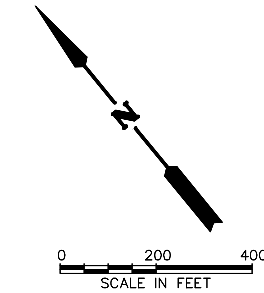
APPENDICES

APPENDIX IIIM-A
FIGURES

Figures IIIM-A-1 and IIIM-A-2

REFERENCES: DELR1900546_ECBASE.dwg DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS.dwg DELR1900546_ECBASE_LF AREA COMPOSITE
Sep 14, 2021 – 12:20pm \\dalfile01.cpyone.com\Redirects\fblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIM-A-1.dwg LAYOUT: Layout1 USER:





LEGEND

Symbol	Description
▬ ▬ · · ▬	PERMIT BOUNDARY
▬ ▬ ▬	LIMIT OF WASTE
- - - -	CELL BOUNDARY
———	CLOSED CELL BOUNDARY
—□—□—	EXISTING SITE FENCE
— — 1050 — —	EXISTING CONTOURS
(1)	CELL DESIGNATION
● BP1	GAS PROBE
(hatched)	EXISTING CHUTE
— GAS — GAS — GAS —	GAS LINE
■ GV2	GAS VENT

NOTES:

1. THIS MAP WAS DEVELOPED BY DALLAS AERIAL SERVICES, INC. BASED ON PHOTOGRAPHS TAKEN APRIL 13, 1994, AND ON SURVEYS MADE BY TIERRA SURVEYING SERVICES ON MAY 12, 2003. CELLS 1,2,3,4 & D TOP UPDATED AUGUST 2018 AND CELLS 6 AND 6 UPDATED JANUARY 2020 BY BAIN MEDINA BAIN SURVEYORS. VERTICAL DATUM BASED ON NGS MEAN SEA LEVEL. MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP STANDARDS.

2. PERMIT BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY DATA PROVIDED BY TIERRA SURVEYING SERVICES, 400 AVENUE 2, DEL RIO, TEXAS (830) 774–0796. DATED: 10–25–94.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

STATE OF TEXAS
TEWOBISTA METAFERIA
123183
LICENSED PROFESSIONAL ENGINEER
09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	05/2021
1.	2ND NOD	TM	09/2021

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT
EXISTING SITE PLAN

Date: OCTOBER 2020
Designed: T. METAERIA
Drawn: J. TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
IIIM–A–1

N

0 1000 2000
SCALE IN FEET

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF WASTE
- [R] RESIDENCE
- [SC] SCHOOL

NOTES:

1. AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED JANUARY 19, 2017.
2. LAND USE IS SHOWN ONLY WITHIN THE ONE-MILE BOUNDARY OF THE SITE.
3. THE ONLY SITE ACCESS ROAD WITHIN ONE-MILE OF THE SITE IS U.S. HIGHWAY 90. REFER TO SECTION 8 FOR ADDITIONAL INFORMATION.
4. REFER TO FIGURE I/II-7.2 FOR SITE ZONING INFORMATION.
5. WITHIN ONE MILE OF THE SITE THERE ARE NO CHURCHES, HISTORICAL MARKERS, HOSPITALS, OR SITES WITH EXCEPTIONAL AESTHETIC QUALITIES.
6. REFER TO FIGURE I/II4.3 FOR INFORMATION REGARDING STRUCTURES AND INHABITABLE BUILDINGS LOCATED WITHIN 500 FEET OF THE PERMIT BOUNDARY.
7. RUBEN CHAVIRA ELEMENTARY SCHOOL IS LOCATED WITHIN ONE MILE OF THE SITE.

FOR PERMITTING PURPOSES ONLY

CP&Y, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1741

CITY OF Del Rio TEXAS

STATE OF TEXAS
TEMOBISTA METAFERIA
123183
LICENSED
PROFESSIONAL ENGINEER
09/07/2021

NO.	REVISION	BY	DATE
1.	1ST NOD	TM	09/2021

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF DEL RIO
VAL VERDE COUNTY, TEXAS
MUNICIPAL SOLID WASTE LANDFILL NO. 207B
MAJOR PERMIT AMENDMENT

MAJOR PERMIT AMENDMENT
LAND USE MAP-AERIAL

Date: OCTOBER 2020
Designed: T. METAFERIA, P.E.
Drawn: J.TORRES
Reviewed: B. HINDMAN, P.E.
CP&Y Proj. No. DELR1900546

FIGURE
IIIM-A-2

REFERENCES: DELR1900546 Border Base Permit.dwg DELR1900546_Std ENVIRO SEALS
Sep 14, 2021 - 12:23pm \\dalfile01.cpyone.com\Redirects\tblaine\Documents\AAA Working Projects\DELR1900546 Del Rio\2nd NOD\base files etc\DELR1900546 Figure IIIM-A-2.dwg LAYOUT: Layout1 USER:

CITY OF DEL RIO LANDFILL

VAL VERDE COUNTY, TEXAS

TCEQ PERMIT NO. MSW-207B

MAJOR PERMIT AMENDMENT APPLICATION

PART IV — SITE OPERATING PLAN

Prepared for

City of Del Rio

October 2020
Revision 1 January 2021
Revision 2 May 2021
Revision 3, September 2021

Prepared by

CP&Y Inc
TPBE Registration No. F-1741
1820 Regal Row, Suite 200
Dallas, TX 75235
214-638-0500

This document is intended for permitting purposes only.

09/07/2021

Part IV

SITE OPERATING PLAN

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09/07/2021

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APPENDIX

Tewobista Metaferia

09/07/2021

Record, with a copy mailed to the TCEQ Regional Office within ten (10) business days of the event. This incident report shall minimally note the transporter of the unauthorized materials, their address, telephone number, driver's name, site inspector, location of the inspection, time of inspection, suspected unauthorized waste, and the resolution of the occurrence.

In the event that the waste materials are suspected to contain regulated hazardous waste or PCB waste, the supervisor shall secure the immediate area around the suspect materials. Landfill personnel shall notify the TCEQ ED of the event by telephone, fax transmission, and mail. Landfill personnel shall prepare an incident report, which shall be kept at the site, with a copy mailed to the TCEQ Region office, within ten (10) business days of the event. This incident report shall minimally note the transporter of the unauthorized materials, their address, telephone number, driver's name, site inspector, location of the inspection, time of inspection, suspected unauthorized waste, and the resolution of the occurrence.

8.4 Unloading Areas

Table 8-2 – Unloading Areas

Unloading Area	Number	Maximum Area Size	Description
Lead Acid Batteries	1	20 ft x 10 ft	Housed in metal cargo box
Motor Oil and Anti-freeze	1	20 ft x 10 ft	Stored in separate 275 gal containers, housed in metal cargo box
Tires	1	65 ft x 18 ft	Tires stored in 53 ft enclosed trailer
White Goods	1	30 ft x 20 ft	Items placed in 40 yd roll-offs
Working Face	1	Normal 40 ft x 75 ft Max 50 ft x 100 ft	

- Lead Acid batteries are not accepted at the working face but are collected in the designated area. Batteries are temporarily stored in a 20 ft x 10 ft area within a metal cargo/storage box. The batteries are hauled off by a local recycler on a regular basis. If necessary, the recycler shall be called for additional pickups.
- Motor oil, filters, and anti-freeze are not accepted at the working face, but are collected in the designated area. Motor oil is stored in 275 gal containers, anti-freeze is stored in drums, and filters are stored in metal drums. These materials are picked up by a local recycler on a regular basis. The recycler is called if additional pickups are needed.
- Tires are collected separately and stored in an enclosed 53 ft trailer. The trailer is hauled away and replaced with an empty trailer by a local recycler as needed.
- White goods are separated from other waste as they enter the landfill gate, and are stored temporarily in 40 SY roll-off containers. As these containers fill, they are transported to a local salvage operation. Any CFC containing materials are included in this category.

The facility is authorized to accept and store the special waste listed above under a separate permit. The containers that store the waste are located outside the permit boundary and are not part of this permit.

8.5 Waste Unloading Procedures

Landfill Attendants, Equipment Operators, Laborers, and Spotters will monitor the incoming waste. Landfill Attendants control site access and monitor incoming vehicles for unauthorized or prohibited wastes by (1) receiving manifests and other shipping documents, (2) recording incoming waste loads, and (3) interviewing the driver, as necessary. Any nonconforming issues will be reported to the Landfill Coordinator or designee. If the non-conforming issues involve Special or Industrial wastes, the Landfill Coordinator or designee will review the SOP to verify that all requirements for acceptance of Special and Industrial waste have been met before the material is accepted for disposal. The procedures for handling prohibited waste that is not discovered until after it is unloaded are discussed in Section 8.2.

Equipment Operators, Spotters, Laborers, or other field personnel will be present at all areas where waste is being unloaded to monitor unloading of waste. These personnel will be familiar with the rules and regulations governing the various types of waste that can or cannot be accepted into this facility and will be trained to identify prohibited wastes before being assigned to this task. The personnel will also be trained and have a basic understanding of both industrial and hazardous waste and their transportation and disposal requirements. The Spotters and Equipment Operators have the authority and responsibility to reject unauthorized loads, have unauthorized material removed by the transporter, and have the unauthorized material removed by on-site personnel or otherwise properly managed by the facility. In the event an unauthorized load is discovered at an unloading area, the Spotter, Laborer or Equipment Operator (i.e., working face staff) will notify the Landfill Superintend or Landfill Coordinator immediately. The Landfill Superintend or Landfill Coordinator will verify that the appropriate action is taken. In addition, if the unauthorized load is discovered at the site entrance, the Landfill Attendant will notify the Landfill Superintend or Landfill Coordinator immediately to verify that the appropriate action is taken. A record of each unauthorized material removal event will be maintained in the Site Operating Record.

Solid waste unloading will be controlled to prevent disposal in locations other than those specified by site management. For example, random load inspections will be conducted as outlined in Section 8.3 of this SOP. Any allowable waste deposited in an unauthorized area will be immediately removed and disposed of properly at the current working face. The Spotters and Equipment Operators or other site personnel will actively investigate any approved waste haul vehicles that do not dispose of their waste in an authorized area. In the event that an authorized load of waste has been deposited in an unauthorized area, site personnel will notify the Landfill Superintend and the waste load will be promptly relocated to the authorized working face area.

8.6 Special Waste Acceptance Procedure

In accordance with current City policy, acceptance procedures for special waste are as follows:

- Water and wastewater treatment plant sludges that have been tested with the Method 9095 Paint Filter Liquids Test and are certified to contain no free liquids, which have been treated or processed, are not hazardous, and are not hauled in vacuum, may be accepted at this landfill. Quantities shall be limited to that which can be adequately handled at the landfill without creating odor problems, and shall be placed in area(s) designated by the city. Such material shall be applied to the closed areas of the landfill and disked into the soil as directed by the city.
- Dead animals and slaughterhouse waste shall be covered by at least two feet of soil, or three feet of other solid waste, immediately upon receipt.
- Drums and metal tanks shall not be accepted at the landfill unless the tops have been removed so that the interiors can be observed prior to crushing.

- Empty containers, which have been used for pesticides, herbicides, fungicides, or rodenticides, may be disposed of in accordance with TAC 330.171(c)(5). Containers shall be triple-rinsed and rendered unusable prior to receipt at the site, and shall be covered by the end of the same working day they are received. If it is not feasible to triple-rinse the containers (e.g., paper bags), the waste must be placed in the active disposal area and covered with at least three feet of solid waste, or the waste must be placed in a specially designated area and covered with at least two feet of compacted soil. Salvaging or scavenging of containers, which have been used for pesticides, herbicides, fungicides, or rodenticides, shall not be allowed under any circumstances.

Regulated asbestos-containing material (RACM) may be accepted at the site if procedures outlined in TAC 330.171(c)(3) are followed. In general these procedures are:

- The facility has been authorized by the ED to accept RACM.
- The site operator shall provide written notification to the ED of the intent to accept RACM.
- A specific area or areas shall be dedicated to receive RACM. The designated area shall be surveyed and marked by a Registered Professional Land Surveyor and identified on a current site diagram. One copy of the diagram shall be submitted to the ED and one shall be maintained at the site.
- The site shall maintain a record of each load of RACM accepted as to its location, depth, and volume of material.
- Upon closure of the MSWLF unit, which accepted RACM, a notation that the site accepted RACM shall be placed in the deed records with a site diagram identifying the RACM disposal areas. Concurrently, a copy of the deed recordation and site diagram identifying the RACM disposal areas shall be submitted to the ED.
- Delivery of the RACM to the site shall be coordinated by the owner/operator so that the waste shall arrive at a time it can be properly handled and covered.
- RACM shall be accepted only in tightly closed and unruptured containers or bags, or shall be wrapped as necessary with six-mil polyethylene.
- Bags or containers of RACM shall be placed, where possible, below natural grade. Where not possible, provisions shall be made to insure that the RACM shall not be subject to future exposure due to erosion or weathering of the cover. RACM placed above natural ground shall be located such that it will not be less than 20 feet from any final side slope, and shall be at least 10 feet below the final surface at closure of the MSWLF unit.
- Bags or containers holding the RACM shall be carefully unloaded and placed in final position so as not to rupture any containers. The containers shall be covered promptly with 12 inches of clean earth, or three feet of solid waste containing no asbestos, taking care not to rupture the containers.
- In the event of an accidental spill, a contingency plan shall be prepared by the owner/operator prior to accepting RACM. The Plan shall specify the responsible person(s) and the procedure for the collection and disposal of the spilled material.
- RACM, which has been classified as a Class 1 industrial waste, may not be accepted for disposal.
- Non-regulated asbestos waste may be disposed of at this landfill in accordance with TAC §330.171(c)(4). The waste shall be accepted only if the load is covered and shall be placed at the toe of the working face. If the waste cannot be placed at the toe, it shall be placed on an area of

the working face which shall not be subject to vehicular traffic or disposed of by any means by which the material could be crumbled into a friable state.

- Other special wastes not identified above or in TAC §330.171(c)-(d) may not be accepted without written approval from the ED. Approvals will be waste specific and/or site specific and will be granted only to appropriate facilities in compliance with Chapter 330. Requests for approval to accept special wastes must be submitted by the generator to the ED, or to a facility with an approval plan. Requests for approval to accept special wastes must include a description of physical and chemical characteristics and a statement whether or not it is a Class I industrial waste as defined by §330.3, and the quantity and rate at which it is produced and/or the expected frequency of disposal.
- Class I industrial waste is not accepted for disposal.
- All requests for approval to accept special wastes must include an operational plan containing the proposed procedures for handling each waste and listing required protective equipment for operating personnel and on-site emergency equipment.
- All requests for approval to accept special waste must include a contingency plan outlining responsibility for containment and clean up of any accidental spills occurring during the delivery and/or disposal operations.
- Soils containing petroleum products are not accepted for disposal.
- The ED may authorize the receipt of special waste with a written concurrence from the facility, however, the facility operator is not required to accept the waste.
- The ED may revoke an authorization to accept special waste if the owner or operator does not maintain compliance with the rules and conditions imposed in the authorization to accept special waste.
- Used oil filters are not accepted for disposal.

Table 19-1 – Odor Control Measures

Operation or Unloading Area	Odor Control Measures
Landfill gas management	Arid climate prevents development of significant gases detectible by smell. No gas connection system operated at the site.
Working face	Immediately cover odorous materials. Repair eroded areas by recovering.
Grease trap waste	Potential odors from grease traps do not emanate from this site, as these waste are not currently accepted at the facility.
Septage	Dried sludge from the water and waste water treatment plant are accepted at the landfill (see Section 8.3 – City of Del Rio Special Waste Acceptance Procedures – which states that quantities of sludge accepted at the landfill will be limited to that which can be adequately handled at the landfill without creating odor problems.
Ponded water	Any unaffected stormwater that is ponded on the site shall be controlled to prevent the occurrence of nuisance odors as discussed in Section 28 – Ponded Water. If ponded water produces objectionable odors, the area should be drained or pumped dry, and the low area filled with soil and regraded to promote proper drainage.
Dead animals	Dead animals will be received and properly disposed of as outlined in Section 8.3. Proper handling will minimize odors from this source.
Leachate	Leachate is collected through the leachate collection system, which drains to a leachate collection sump. The leachate pump is located in the leachate sump, at the bottom of a riser pipe. The leachate is pumped through a closed system and discharged directly into a tanker truck. The leachate is transported to a sewer manhole inside the landfill property and discharged. The potential odors from leachate management are very minimal. The riser pipes for cleanout of the leachate collection system are capped to prevent any landfill gas or leachate odors from escaping. The leachate pump riser pipe is capped at the ground surface, and the leachate pump is located below grade in the sump on the bottom liner, minimizing the potential for odor generation. The leachate collection system cleanout riser and sump riser pipe caps and leachate piping should be inspected monthly and maintained to minimize the potential for escaping odors. These inspection and maintenance activities should be documented in the facility records.

20 DISEASE VECTOR CONTROL

The operator personnel will control on-site populations of disease vectors, which include rodents, excessive bird populations, flies, mosquitoes, and other insects or animals capable of transmitting diseases to humans. The primary means of control will be to prevent, inhibit, or deter vectors from coming into contact with deposited waste through proper waste compaction and daily cover application. Waste deposited at a working face area will be promptly compacted. Daily cover and/or ADC will be applied at the end of each operating day in accordance with Section 27.

Documentation of these inspections will be maintained in the Site Operating Record. Birds will be controlled by properly covering the waste as soon as possible in order to reduce their food source. Site personnel shall report any problems with rodent and insects to supervisor. Mosquitoes will be controlled by preventing stagnant water for developing on the site. If site inspections identify the need for additional vector controls, the site will contract with a licensed commercial pesticide applicator, or other qualified pest control specialist to perform the following services:

- Insect and rodent control within enclosed structures.
- Implement the additional vector management practices.
- Assist in the development of vector specific awareness training materials for site personnel.
- Assist the site in distributing these training materials and providing any necessary training activities on vector awareness and control for site personnel.

21 SITE ACCESS ROADS

21.1 All Weather Roads

As a part of the overall site maintenance program, facility personnel will collect any windblown waste materials on a daily basis, which have been trapped on-site, in drainage channels and on the access roads.

On-site access roads will be maintained to be freely draining, passable by transportation vehicles in two directions, and free from excessive ruts. The road to the inclement weather disposal area will be maintained as an all-weather road, with an asphalt surface. This should facilitate movement of traffic into and out of the site during waste acceptance hours. Roadways shall be inspected weekly to determine the need for maintenance and regrading. Inspections should be documented as a part of the facility operating records. Regrading or repairs should be performed weekly, or as necessary to minimize ruts, potholes, or other depressions which may affect vehicle traffic. These activities should also be documented in the facility operating records.

Solid waste transportation vehicles arrive at the working face at random intervals throughout the day. Often there are a number of vehicles unloading waste at the same time while other vehicles are waiting. Operations at the working face will be conducted in a manner which will encourage the efficient movement of transportation vehicles to and from the working face, and to expedite the unloading of solid waste.

The approach to the working face will be maintained such that two or more vehicles may safely unload side-by-side. An adequate turning area for hauling vehicles will be provided (typically a 100' maneuvering area at the active face), and a vehicle turn-around area large enough to enable vehicles to arrive and turn around safely with reasonable speed will be provided adjacent to the unloading area. The vehicles will be directed back to a vacant area near the working face to unload. Upon completion of the unloading operation, the transportation vehicles will immediately leave the working face area. On-site personnel will direct traffic as necessary to expedite safe movement of vehicles.

All on-site access roads will be maintained in a reasonably dust-free condition by periodic spraying from the facility's water truck. The water truck will be filled from a nearby fire hydrant.

Heavy equipment at the site will be used as necessary to control or remove mud accumulations on on-site roads. The City will also maintain a stockpile of crushed rock, recycled concrete, masonry demolition

debris, recycled asphaltic concrete pavement (RAC) or other similar material for use in maintaining passable access roads during wet weather.

All-weather roads will be used during inclement periods. The site personnel will barricade unimproved interior access roads during hours of operation in wet weather. The barricades will remain in place until site personnel verify that the unimproved roads can be accessed in a safe and reasonably mud-free condition.

The length of paved entrance road from the access gate to the active landfill has been adequate for the past 15 years to control mud from vehicles departing the site to off-site access roads. However, if the current methods of mud control become ineffective, the site will add crushed-stone surface or similar material surface to provide for all weather access area from the unloading areas to public access roads (i.e., mud on vehicles will "spin off' on the access roads within the landfill before the vehicle returns to the public access road). Tracked mud and associated debris will be removed at least once per day on days when mud is being tracked onto public roadways. Mud removal on roads as well as minimize depressions, ruts, and potholes, will be accomplished by suitable equipment (e.g., motor grader, loader with brush attachment, or street sweeping equipment). Documentation of the mud and debris inspection and abatement measures should be maintained in the site records.

The City shall maintain the paved access road to the Landfill. The Landfill Operator shall be responsible for the maintenance of the working roads within the landfill cell and all on site roadways within the permit boundary.

Site operation will continuously reserve disposal areas adjacent to all-weather access roads for wet weather disposal.

21.2 Particulate and Dust Control

Dust and particulate control shall be maintained by periodic applications of water to the access roads during dry, windy, and/or dusty periods by the Landfill Operator. Water truck(s) may be used for dust control and moisture conditioning of soil materials, as necessary. In addition, water contained in basins or excavations may be used for dust control.

22 SALVAGING AND SCAVENGING

Salvaging refers to the controlled diversion of certain items with the intent to recycle these items. The landfill may direct various items, such as white goods, to a designated area for recycling; however, salvaging shall not interfere with prompt disposal of solid waste received at the site. Salvage items will be removed often enough to prevent becoming a nuisance, preclude the discharge of any pollutants, or to prevent an excessive accumulation of material. Recyclable items shall be handled according to Section 18 – Disposal of Large Items. Pesticide, fungicide, rodenticides, or herbicide containers shall not be salvaged. Class I industrial and other special wastes received at the disposal facility must not be salvaged.

Scavenging refers to the uncontrolled, unauthorized diversion or removal of waste in the system. Scavenging will not be allowed and individuals will be properly informed of this policy, and any waste scavenged will be returned to the working face for disposal.